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The American City

October, 192
Vol. XLI. No.
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Showing the Graf Zeppelin Moored During Its Recent Round-the-World Flight; Also One of the Motor Trucks of the Los Angeles Department of Water and Power, and One of the Tractors Used by the City in Preparing the Grounds

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The Municipal Index

Edition of 1929, 786 pages

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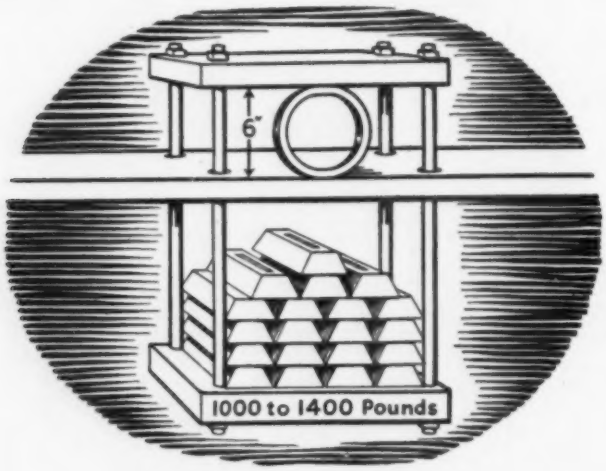
A deLavaud pipe section

one inch wide will support *a load of from 1000 to 1400 lbs.*



THE remarkable ability of deLavaud Pipe to withstand severe crushing strains was demonstrated in a ring-crushing test. This test was conducted by a recognized authority, whose report reads in part as follows:

"Six rings, two each cut from the bell end, the middle, and spigot end of a length of deLavaud pipe picked at random from the manufacturer's stocks, constituted the test samples. These were cut from the pipe band on a lathe and were one inch wide. These rings were quite elastic and the metal appeared to be of a good smooth even grain. Results showed that the load required to cause failure was from 1000 to 1400 lbs."

The facts about deLavaud's great strength are accepted in engineering circles everywhere. It has been definitely proved that deLavaud has 25% greater resistance to internal pressure than good pit cast pipe. The above tests demonstrated deLavaud's ability to withstand tremendous *external* crushing strains.

Cast iron pipe made by this Company bears the "Q-check" trademark of The Cast Iron Pipe Research Association.

Those who would know the secret of deLavaud's greater strength need look no further than the microstructure of the metal itself. It is even, close grained and free from slag and blow holes. It is made by pouring molten iron into a rapidly revolving cylindrical mould. Centrifugal force holds the metal against the mould, and drives impurities out *with a force 40 times greater than gravity.*

Let us send you the deLavaud handbook and complete facts and figures about deLavaud Pipe.

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Sales Offices: New York, Philadelphia, Pittsburgh, Cleveland, Buffalo, Chicago, Dallas, Birmingham, Kansas City, Minneapolis, Seattle, San Francisco, Los Angeles

Items and Abstracts for MAYORS AND CITY MANAGERS

Atlanta Adds to Population and Area by State Legislation

UNDER an act passed by the Georgia Legislature and approved by the Governor in mid-August, the city of Atlanta is expanded to five times its old area, and adds nearly 30 per cent to its population.

The "Greater Atlanta" measure provided for the unification of the present municipality with the suburban cities of East Point, College Park, Hapeville, Decatur and Avondale, and a large amount of unincorporated territory. Parts of three counties—Fulton, De Kalb and Clayton—are included. The cities embraced in the consolidation will continue to operate their present governments as boroughs, while the general government for Greater Atlanta will make recommendations regarding city-wide matters.

It is estimated by the Atlanta Chamber of Commerce, which has supported the measure, that the 1930 population of the new Atlanta will be 361,000, making it the largest city in the South, aside from New Orleans. The new area is 179 square miles, instead of 34.79 square miles as at present.

The municipal officers of the new Atlanta, after January 1, 1930, will be a mayor, twenty councilmen, and a clerk; the mayor of the old Atlanta to be mayor of the new, and the council to be made up of the mayors of the other five cities (now boroughs) mentioned and a resident freeholder of each of fifteen "unincorporated communities" into which the remaining area is divided, these freeholders to be chosen by the Board of County Commissioners of the county, containing the community.

No popular vote was required or taken to make the new arrangement valid, but a new charter, to be drafted by the government of the new Atlanta for submission to the Legislature in 1939 or later, shall not take effect in any borough or unincorporated community without a majority vote at a special election.

Baltimore Celebrates Its 200th Anniversary

BALTIMORE observed its 200th birthday last month with an elaborate four-day celebration, extending from September 12 to 15 inclusive.

The outstanding event was a historical pageant of floats held on the third day and showing the growth of the city from its earliest days to the present era. On the opening day, an impressive military parade proved the leading attraction. Approximately 500 pigeons carrying messages of greeting to President Hoover and the mayors of all the large eastern cities were released at noon on that day under the direction of Mayor William F. Broening.

Religious tolerance was the keynote of a long parade on the second day, when 12,000 members of Catholic, Jewish and Protestant fraternal orders marched through the city. As a result of this demonstration, a permanent non-sectarian body was formed, embracing representatives of all the fraternal groups, to promote friendship and understanding among Baltimore residents, regardless of religious or political affiliations. Sixty thousand school children were guests at a play festival that day at the stadium, where 3,000 youngsters ten years old or less gave folk dances and played old-fashioned games in picturesque costumes.

Good Government Radio Talks Given in Buffalo

"ISSUES of Good Government" in the coming election constitute a series of radio addresses being given by various directors of the Buffalo Municipal Research Bureau over various stations in that city.

This series of civic talks, one of many instituted during the past year by several large cities, started the latter part of August and will continue until October 23. Four addresses were given in August, three in September and three are scheduled for October. Stations WKBW, WGR and WMAK are being utilized. Each talk lasts but 10 minutes and a different director is on the air each time. During October, the talks are to be given from 6:05 P. M. to 6:15 P. M. on the first, second and fourth Wednesdays of the month.

Conference on Municipal Airports in Washington

SEVERAL prominent figures in the aviation world will speak at the municipal airport conference to be held jointly by the American Road Builders' Association and the Aeronautical Chamber of Commerce in Washington on October 24 and 25.

More than 10,000 invitations have been sent to city and county officials affiliated with the sponsoring organizations or connected officially with airports. Major Donald A. Davison, Chairman of the Municipal Airports Committee, City Officials' Division, American Road Builders' Association, is in direct charge of the conference program; Colonel Harry H. Blee, Chief of the Airports Division, Department of Commerce, will preside at the business sessions; and Major Frederic A. Reimer, President of the Association, is to preside at a luncheon October 24. All sessions and social events will be held in the Willard Hotel.

"Airport Layout and Planning" will be the subject of a paper read by B. Russell Shaw, Airport Engineer, of St. Louis. C. A. Hogentogler, Senior Engineer, Bureau of Public Roads, will discuss "Airport Drainage," and C. N. Conner, Engineer Executive, American Road Builders' Association, will speak on "Airport Surfaces." A. P. Taliaferro, Jr., Chief of the Field Service Section, Aeronautics Branch, Department of Commerce, will present a paper on "Airport Management"; Lt. Col. U. S. Grant, III, Director of Public Buildings and Parks in Washington, will handle the subject, "Airports and Public Parks"; Col. Clarence M. Young, new Assistant Secretary of Commerce for Aeronautics, will discuss "European Airport Practices"; and Charles M. Upham, Secretary-Director of the American Road Builders' Association, will be toastmaster at a dinner on the first day, when air officials of the Army and Navy will speak on the non-technical aspects of aeronautics.

City Wards with More People Than a State

THE city of Chicago is divided into fifty wards, each of which sends an alderman to the City Council. According to figures recently compiled by Frederick Rex, Librarian of the Chicago Municipal Reference Library, 18 of the wards each have a population exceeding that of the state of Nevada, now estimated as 77,000. In the state of Illinois the city next to Chicago in size is Peoria, estimated at 84,500 as of July 1, 1928. Eleven of the Chicago wards are of greater size than this. The largest—the seventh—has a population estimated at 114,729, about the same as Tampa, Duluth, or Reading, Pa.

Municipality Takes Over Chamber of Commerce Airport

OKLAHOMA CITY has voted $425,000 in bonds for the enlargement and improvement of its municipal airport. The Aviation Committee of the Oklahoma City Chamber of Commerce has operated the airport for the past four years and was largely instrumental in putting over the bond-issue campaign. The port will in the future be operated by the city as a strictly municipal project.

When completed, the new field will comprise 360 acres and will meet all of the qualifications for an A 1A airport as set forth by the United States Department of Commerce.

Photographic Recording of Public Records and Documents

AN enactment of the 1929 Ohio Legislature (H. B. 32) provides for the use of photographic recording, or photostatic recording, in the keeping of records and documents by any officer, court, commission, board, institution, department of state, or any county of more than 50,000 population. Calling attention to this new law in its issue of June 29, the *Toledo City Journal* says: "This act opens the way to great saving in time and money for all state and county recording purposes, and should be widely adopted."

See Also

"The American Mayor Through Chicago Eyes," page 137.

Secure ALL *the advantages of elevated storage with* HORTON TANKS

AS summarized by Donald H. Maxwell, of Alvord, Burdick & Howson, Chicago Engineers, in a paper read at a meeting of the American Water Works Assn., elevated storage should perform the following functions:

—provide water during interruptions of pumps service

—lessen pumping costs by reducing peak demands both for water and power

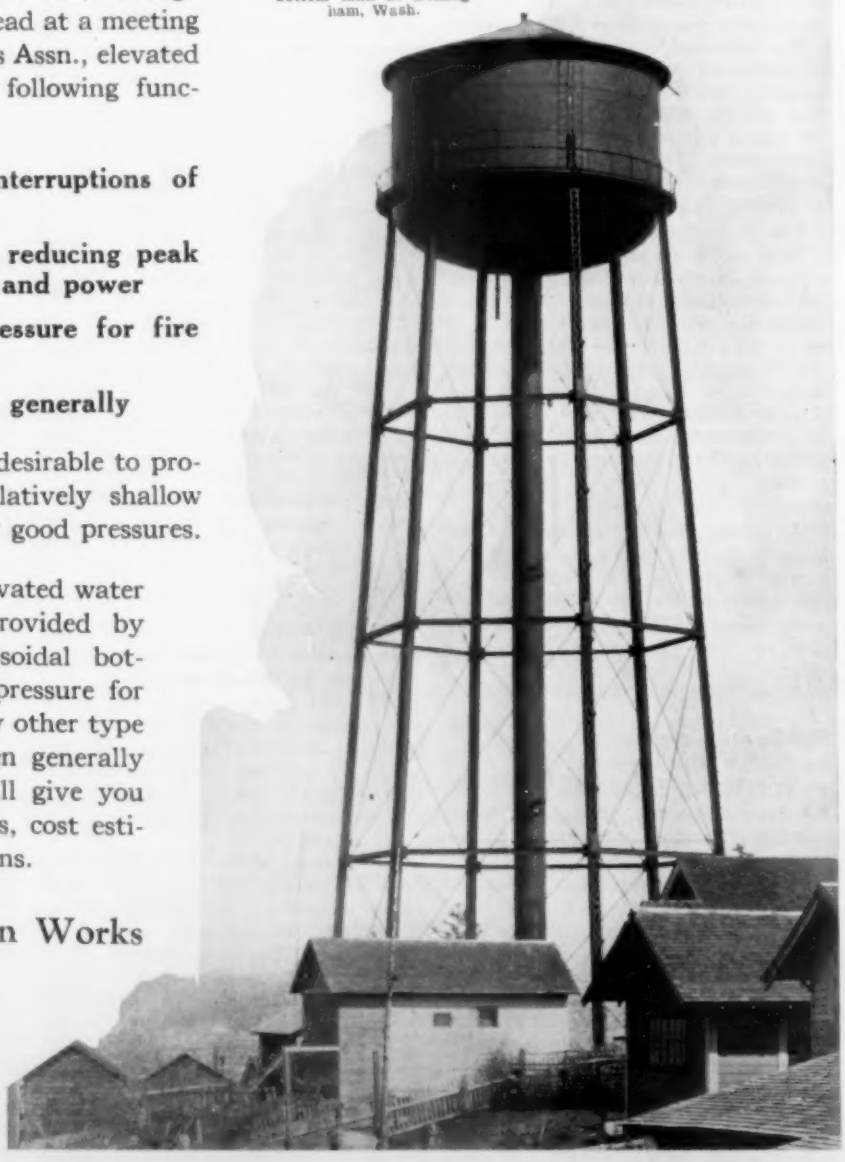
—provide ample water pressure for fire protection

—improve water pressures generally

He further says that it is desirable to provide elevated storage in relatively shallow tanks, to maintain uniformly good pressures.

The above functions of elevated water storage are economically provided by Horton Steel Tanks. Ellipsoidal bottoms give less variation of pressure for the desired capacity than any other type of tank that has as yet been generally used. Our nearest office will give you details of standard tank sizes, cost estimates and typical installations.

150,000-gallon ellipsoidal-bottom tank at Bellingham, Wash.



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New York.....3108 Hudson Terminal
Cleveland.....2236 Union Trust Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia.....1616 Jefferson Bldg.
Boston.....1501 Consolidated Gas Bldg.
Dallas.....3306 Magnolia Bldg.
Atlanta.....1014 Healey Bldg.
San Francisco.....1033 Rialto Bldg.
Havana, Cuba.....Apartado 2507

HORTON TANKS

AC10-Gray

Items and Abstracts on WATER AND SEWERAGE

Promoting a New Water-Works for a Small City

A STUDY of the history of any successful city reveals that it first had to solve its water problem before it began to grow normally, according to Julian Montgomery, consulting engineer, Wichita Falls, Texas, in a paper read before the Eleventh Texas Water Works Short School. It is an unfortunate fact that in the majority of cases where plans for public improvements are presented, an appeal must be made from the standpoint of the savings in dollars and cents before any considerable favorable reaction from the business standpoint will result. When it can be shown that there will be a saving in the reduction in the insurance key rate and that when properly designed and operated the water-works systems should show net earnings each year, then, from a cold-blooded business viewpoint alone the proposition often receives favorable consideration.

It is essential, of course, to educate the public to the real benefits to be derived from a water-works system, other than the savings in dollars and cents. These are chiefly: safeguard to health; protection from fire; convenience of domestic water-supply; necessity for industrial water-supply.

The first step that the city should take is the employment of a competent consulting engineer. Experience has shown how unwise it is, especially for the smaller cities, to attempt a public improvement such as a water-works system without the impartial and unprejudiced guidance of a reputable consulting engineer. The engineer must understand the principles of promotion, the preliminary reports must not be too technical nor too theoretical. A water-works system is a very human affair and should be so treated. Bond issue elections for needy public improvements fail more often, perhaps, from over-promotion than from lack of promotion. It is a good rule to let a sleeping dog lie. When the opposition are thoroughly aroused with too much personal activity, they usually become well enough organized to cause lots of trouble.

It has been found that more good can be accomplished in promoting a water-works system by posting in prominent places several prints of a map of the city showing the proposed layout of the distribution system and designating the fire-hydrants, water-supply, elevated tanks, etc., so that every citizen can see for himself exactly the service and fire protection that he will get. Such layout maps, together with sensible and lucid newspaper articles, will ordinarily be sufficient, and in a quiet, effective way will do more good than all of the remaining methods usually employed. It is well to have a good, live committee to see that every voter favorable to the proposition casts his ballot on election day.

Painting Metal Water-Tanks

THE increasing number of steel tanks used in water-supply systems and the number of failures of the tanks due to pitting and corrosion have made the problem of adequate protection for these surfaces one of great importance to water-works operators. This subject was discussed by J. H. Davidson, Water Engineer, M. K. & T. Railway Lines, Parsons, Kans., at the Eleventh Texas Water Works Short School.

The quality of the water stored and the prevailing atmospheric conditions are important factors in the corrosion and pitting of the tanks, and for these reasons much more trouble is experienced in certain localities than in others. Steel tanks have been in service, where conditions are favorable, for over thirty years without serious deterioration and without requiring excessive expense for maintenance. On the other hand, there are cases on record where tanks inadequately protected have required extensive repairs or have even failed in fifteen years or less.

The most common corrosion encountered in storage tanks is a general rusting and scaling-off over areas that are exposed to the action of water and air alternately, on account of the varying water-level. This sort of corrosion will eventually waste away the plates until they may collapse, but it is not nearly so active or destructive as localized pitting or grooving due to electrolytic action. Since both of these forms of corrosion require the metal to be set, it follows that any coating that will successfully prevent moisture from coming in contact with the bare metal will prevent corrosion. If conditions are such that tanks can be taken out of service for several days every two or three years for cleaning and painting, there are a number of paints and similar preparations that will prove satisfactory, but these frequent interruptions in service are inconvenient and expensive, and more durable coatings are desirable.

The following materials are most commonly used for coating the inside of steel tanks:

(1) Paints using linseed oil as a vehicle and various materials for pigment and filler; (2) bituminous or asphaltic and coal tar paints in liquid form; (3) asphaltic and coal tar mastics which have to be melted and applied hot; (4) materials with a petroleum jelly base and usually containing some rust-inhibiting chemicals such as chromium salts; (5) emulsified asphalts; (6) portland cement grout.

The objection to linseed oil paints is that they dry by oxidation and if submerged in water before sufficiently oxidized they soon become soft and no longer impervious to water. Asphaltic and coal tar paints in liquid form have the advantage of not depending upon oxidation for drying, and are usually rather quick in drying so that the tank does not have to be kept out of service so long. Asphaltic and coal tar mastics applied hot in coatings of from ⅛- to ¼-inch thick over suitable primers have proved very satisfactory, as reports indicate that some of these coatings are in good condition after ten years' service. Compounds with a petroleum jelly base, resembling vaseline, to which some rust-resisting chemical has been added, have been highly recommended for the protection of interior surfaces of steel water-tanks. Emulsified asphalt has not proved generally satisfactory as protective coatings for the interior of tanks.

Portland cement grout as a protective coating for the interior of steel tanks has been used with very gratifying results. This material has been especially efficient in reducing pitting and grooving due to electro-chemical action.

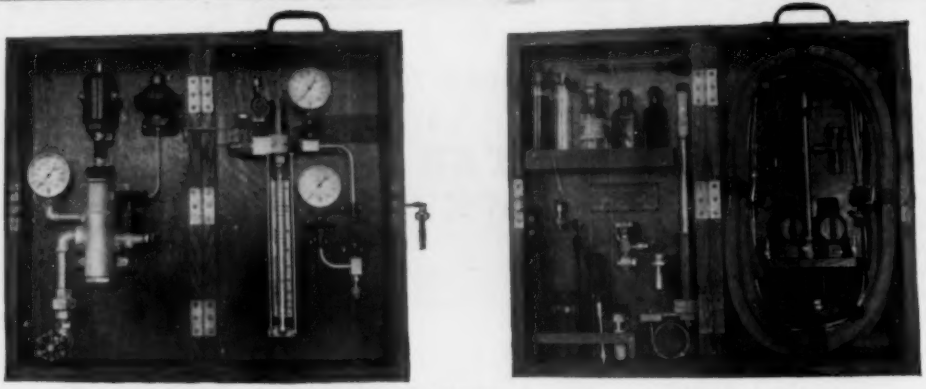
New Orleans Increases Drainage Pump Capacity

PUMPING facilities capable of removing 25,000 to 28,000 cubic feet of water every second will soon be in operation in New Orleans, La., to pump rain water into the Mississippi River. As New Orleans is below the level of the river, some artificial means must be provided for getting rid of surface water which in other cities drains away naturally. The present pumping facilities in New Orleans have a capacity of approximately 12,000 cubic feet of water per second, but this is inadequate as shown by the accompanying photographs taken in July 25, 1929, when exceptionally heavy rainfall filled the entire drainage system and overflowed various streets in New Orleans with from 3 to 36 inches of water.

The new pumps, 12 of which are to be added very soon, will be operated by General Electric 2,000-horsepower, 6,000-volt motors, running at a speed of 94 revolutions per minute. The smaller pumps will each be driven by similar motors rated at 1,200 horsepower, 6,000 volts and running at a speed of about 83 revolutions per minute.

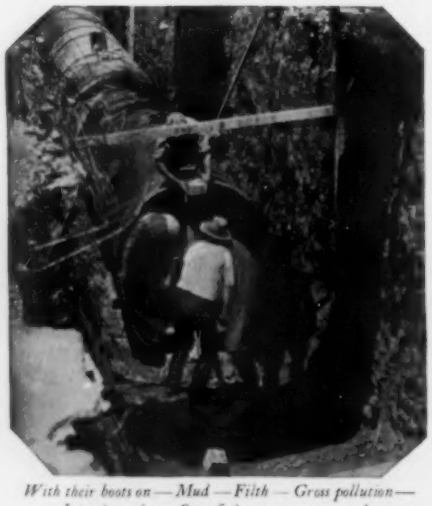
The large pumps will range in diameter from 14 to 18 feet and all will be of Wood design of the low-head screw type. Each of the large pumps when driven at its rated speed will deliver from 1,000 to 13,400 cubic feet of water per second according to the varying water conditions. The total pumping capacity ultimately available will be able to remove in 24 hours a 14-inch rainfall over the entire city of New Orleans.

Each of the motor-operated pumps will be equipped with a separate control panel on which will be mounted the necessary control switches, meters, and indicating devices for proper operation. The switches on the panels will control the operation of solenoid-operated oil switches located at other points and the pumps will be started, after priming, by these oil switches.



W&T PORTABLE CHLORINATING EQUIPMENT FOR MAIN STERILIZATION AND EMERGENCY USES

All New Mains are Polluted and should be Chlorinated . . .



With their boots on — Mud — Filth — Gross pollution — Into the main — One of the many reasons why water mains should be sterilized by chlorine

EVERY waterworks man knows how impossible it is to prevent pollution of new mains during construction, or old ones while repairs are being made. Trench filth, leakage from sewers, surface drainage—gross pollution . . . *a positive menace to the public health.* No amount of flushing will completely eliminate such pollution. The main must be STERILIZED to kill disease germs. Chlorine is the cheapest and best chemical to use.

With the W & T Portable Chlorinating Equipment, new mains can be easily and quickly sterilized and the necessary control tests made to assure complete disinfection. It is applicable for emergency uses of all kinds. Every waterworks should own one.

WRITE FOR OUR TECHNICAL BULLETIN No. 98

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WALLACE & TIERNAN

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Manufacturers of Chlorine Control Apparatus

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LOS ANGELES SEATTLE ST. LOUIS BUFFALO INDIANAPOLIS DETROIT BOSTON JACKSONVILLE
CHATTANOOGA CHARLOTTE OKLAHOMA CITY PHILADELPHIA SPOKANE OGDEN
WALLACE & TIERNAN, LTD., TORONTO, CANADA WALLACE & TIERNAN, LTD., LONDON, ENGLAND

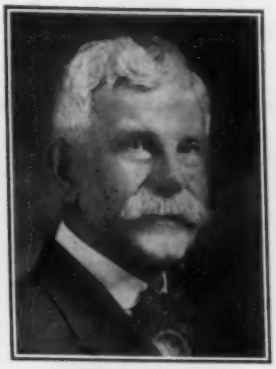
Se 19

ALSO SEE OUR ADVERTISEMENT ON PAGE 12

WHO'S WHO IN WATER SUPPLY

Installment No. 22—Portraits of Water-Works Officials.

THOMAS G. BURKE
Supt., Public Works,
Plattsburgh, N. Y.
(Appointed 1918)



JAMES D. SEIBERT
Supt., Water Dept.,
Bellefonte, Pa.
(Appointed 1920)

FRANK A. LYON
Supt., Water Dept.,
Oneonta, N. Y.
(Appointed 1924)

HOWARD M. KING
Supt., Water Works,
Springfield, Mass.
(Appointed 1922)

CHARLES C. CASAD
Commissioner, Public Works,
Bremerton, Wash.
(Appointed 1923)

JAMES M. WARDLE
Supt., Water Works,
Hudson, N. Y.
(Appointed 1928)

GEORGE E. OSGOOD
Supt., Public Works,
Portsmouth, N. H.
(Appointed 1927)

E. A. TURNER
Supt., Water Dept.,
Marietta, Ga.
(Appointed 1927)

A. W. STEDMAN
Supt., Water Works,
Canon City, Colo.
(Appointed 1925)

McKEAN MAFFITT
Water Supt.,
Wilmington, N. C.
(Appointed 1919)

THOMAS A. SMITH
Supt., Ely Water Co.,
Ely, Nevada
(Appointed 1926)

JULIUS D. BEEBE
Local Mgr., Calif. Water Service
Co., Redondo Beach, Calif.
(Appointed 1928)

RAY CROZIER
Supt., Water Works Co.,
Peoria, Ill.
(Appointed 1913)

CHARLES W. LUDLOW
Supt., Bd. of Water Commrs.,
Rahway, N. J.
(Appointed 1925)

TRUSCON HIGHWAYS

MODERN PRODUCTS for MODERN ROADS

Modern roads must be permanent. Otherwise maintenance costs, repairs and replacements exert a heavy drain on public funds and seriously hamper any road building projects. Truscon Products — the modern products for modern roads — assure road permanence at an economical cost. The complete Truscon line of Reinforcing Steel, Joints, Curb Bars and Road Forms is of typical Truscon quality and is shipped all in the same car. This means savings in freight charges and a certainty that all products will be right on hand when and where needed.

Write for quotations and handbook, "Modern Road Construction"

TRUSCON PRODUCTS FOR REINFORCING ROADS AND PAVEMENTS

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO
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Warehouses and Offices in Principal Cities

Surface-treated Macadam in Ontario

SURFACE-TREATING materials varying from 40 to 80 per cent asphaltic base are used extensively in Ontario, the heavy materials having received special consideration in the last few years. In carrying on the work of surface treatment, it is specified that one-half of the road shall be treated in June and the other half during the month of October, according to R. M. Smith, Deputy Minister of Highways, Ontario Department of Highways. This can readily be done, as most of the surfacing on Ontario macadam and bituminous roads runs about 21 feet wide. In this way, many of the complaints that are raised by motorists because of splashed cars are eliminated.

Immediately after the road has been treated, chips or gravel running approximately 20 pounds to the square yard is applied. The Department specifications also require that all heavy materials shall be heated. While this, of course, is necessary to permit satisfactory spraying when 80 per cent asphaltic base is used, 60 per cent base is frequently treated in the same way. On new work in Ontario, the lighter oils are used in the initial treatment, securing as great a penetration as possible, followed by the application of the heavier bases. The quantity of bituminous material to be applied depends entirely upon the surface of the treated road, the applications in Ontario varying from 1/5- to 1/3-gallon to the square yard.

Methods of Surface-Treating Roads with Oil in Minnesota

IN preparing a road for oil treatment the roadway is first bladed true to cross-section, maintaining a crown of about ¼-inch per foot of roadway, and by constant dragging and the aid of traffic a smooth surface is developed. When the surface is in this condition and perfectly dry,—and the factor of dryness cannot be emphasized too strongly,—the loose material is bladed to the side of the road. Oil is then applied at the rate of 0.35 to 0.55 gallons per square yard. The amount of the first application is limited by the maximum amount that will penetrate into the road. Half of the roadway is treated at a time, and traffic can be carried on the other half. This oil is applied at a temperature of 180 degrees Fahrenheit and a pressure of about 25 pounds, and usually penetrates into the surface in from one to eight hours.

As soon as the first coat has set, a second application of the same kind of oil is made at the rate of 1/3-gallon per square yard and at a temperature of 160 degrees Fahrenheit. This application is immediately covered with gravel passing a ¾-inch screen, at the rate of 350 to 500 cubic yards to the mile. As soon as this is completed, the roadway is subjected to continuous dragging either by a spring blade attached to a truck or by a motor patrol grader. A gravel float of about ½-inch is maintained over the surface. This type of treatment does not exhibit a bituminous surface as do the mixed methods, but instead has all the apparent characteristics of a good gravel road. The wear of traffic is absorbed by the road metal and not by the bitumen.

The following benefits and advantages may be cited for the increasing popularity of bituminous treated roads, according to H. G. Nicholson, formerly Engineer, Minnesota Highway Department:

From the standpoint of economic road construction and maintenance, the traffic capacity is greatly increased. The dust hazard with its attendant ills is minimized. This is welcomed both by the traveling public and by the citizens living in close proximity to the highway. This feature adds not only to the comfort but also to the safety of the users.

The annual cost for replacement gravel is reduced and the conservation of our rapidly diminishing supply of road metal results.

The tire wear and gasoline consumption are reduced to a factor far below that of the ordinary gravel road and are comparable to that of the higher types of pavement. In fact, some drivers contend that the tire wear is less on bituminous surfaces than on certain other pavements.

An all-weather road is developed at a cost which can be met in districts where funds are not available for rigid types of pavements.

Finally, it is conceded that when a higher type pavement must be built, the bituminous material previously added is an asset because of the increased stability of the subgrade.

Items and Abstracts *for* ENGINEERING AND HIGHWAY DEPARTMENTS

Adapting Cost Records to Municipal Operations

IN recent years there has been considerable discussion as to the profitable results that would follow if various non-profit government departments were systematized to the degree of efficiency of private organizations. The town of Brookline, Mass., is proof of the logic of this reasoning. Daniel G. Lacy, Superintendent, Highways, Sewer, Garbage and Forestry Departments, is responsible for conceiving a system of cost records which makes the Brookline taxpayer's dollar go farther.

In 1921 because of dissatisfaction with the standard of service offered by garbage contractors, a municipal department was organized. An original purchase of trucks has been increased until now there are 19 various types and sizes of Mack trucks in service. They are used in garbage, ash and paper collection, sewer and highway maintenance and general construction. The department became completely motorized when two 14-cubic-yard bodies mounted on Mack chassis recently replaced 14 horse-drawn trailers.

After installing the trucks, the next step was the instaliation of a cost system. The function of cost work in municipal activities is to analyze the cost of doing one particular job, thus securing the lowest possible cost under existing conditions, as well as data upon which to base estimates on future work. Properly kept cost records will show such information as excessive use of material, excessive use of supplies, inefficiency of foremen or workmen, excessive loss of time waiting for material, obsolete methods, obsolete costs, as compared with other municipalities.

Many other incidental advantages are derived from the keeping of proper cost records, the most important of which from an economical standpoint is that fewer supervisors are required in certain classes of work, as the cost sheet is more persuasive than the eye of the taskmaster. One skilled department head can direct more men with greater effectiveness where thes records are employed. The system also has the psychological effect of instilling a keen spirit of competition between foremen, as each makes a special effort to have the best cost record.

Repaving in Salt Lake City

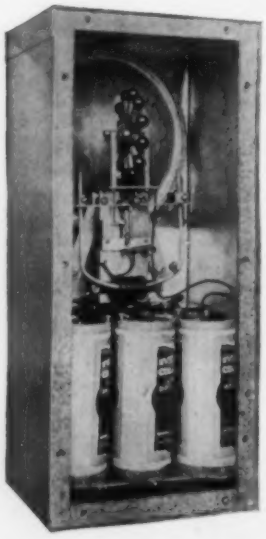
THE most important paving improvement during 1928 in Salt Lake City, Utah, was the resurfacing of South Temple Street from E Street to Virginia Street, according to the last annual report. This street was originally laid with sheet asphalt 2 inches thick with 1½ inches of binder on a 6-inch concrete base. The work was done under three separate contracts in 1905, 1906 and 1907.

During that period asphalt pavements were laid without much consideration as to the degree of hardness. In fact, less hard pavements were favored to facilitate the travel of horse-drawn vehicles. Since the use of the automobile has increased, the pavements of the city have been subjected to traffic of a more severe nature. The result is that many of the old and less hard pavements have warped and rolled, as was the case on South Temple Street.

The asphalt and binder were replaced with a Warrenite Bitulithic pavement having a thickness, including the black base, of from 1½ inches to 8 inches. The variable thickness was caused by the irregular cross-section of the concrete base, which was due to the flattening of a section of the center of the street to accommodate the street-car tracks which were removed shortly before the resurfacing was done, and by the unevenness of the concrete base generally. Considerable difficulty was experienced in securing a uniform surface due to variable compaction caused by the variable thickness. The Utah Light & Traction Co. resurfaced that portion within the abandoned right-of-way. The cost of the remaining portion was assessed against the abutting property with the exception of the pavement at the intersections, which was paid for by the city.

STOP!

Of course you'll stop when you see the W & T *Dry Battery Warning Flasher*



The automatic lamp changer is a distinguishing feature of the W & T Dry Battery Flasher. If a lamp burns out a fresh lamp automatically takes its place.

Because of its clear, brilliant flash—

Because of its clear legend in Rayflector Buttons—

Because it is always working.

The W & T automatic lamp changer and sturdy Eveready Dry Batteries assure continuous operation.

Batteries and lamps require changing but once in 6 months.

Yearly operating cost not over $8.00 per flasher.

Signs and legends available for various traffic needs.

Technical Publication No. 86 gives full details.

Standard W & T Dry Battery Flashing Stop Sign.

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WHO'S WHO AMONG CITY ENGINEERS

Installment No. 10.—Portraits of City Engineers of 14 Cities in Indiana

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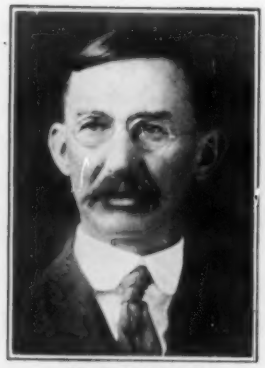

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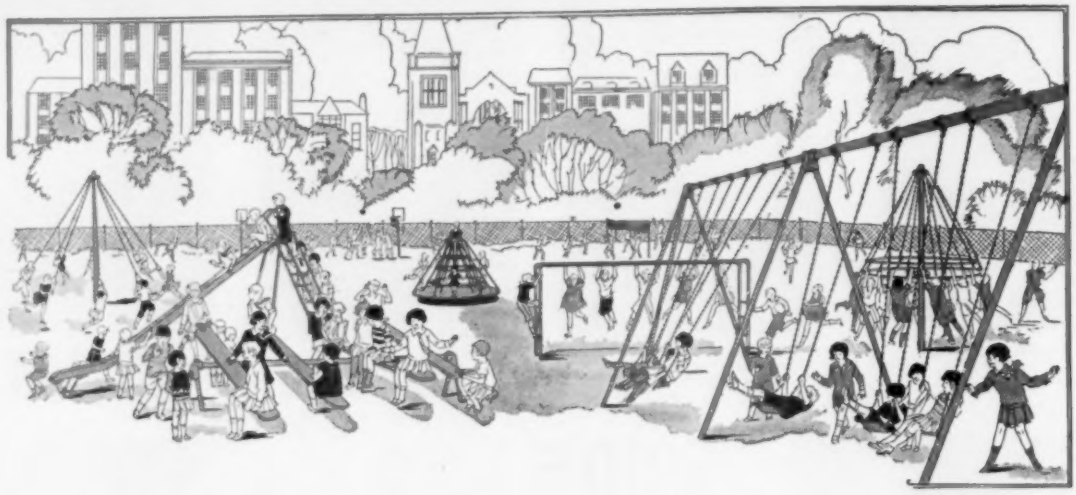

More Playgrounds —Fewer Accidents

KEEP the children off the streets –give them good playgrounds with plenty of fun-making, muscle-building, health-developing equipment—and yours will be a town where accidents involving children are few and far between.

For 21 years, Everwear Playground Apparatus has been recognized as the standard of quality. Built to withstand the abuse of after-hours roughnecks. Embodies every element of safety human ingenuity can devise. Playable as though the kids themselves had planned it.

Schools, institutions, cities, — the country over which have equipped their parks and playgrounds with Everwear Equipment have found it superior. Also more economical, because of its greater durability.

Send for Catalog which gives complete information. Lists 161 different models and sizes of apparatus with which to build your playgrounds.

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PLAYGROUND APPARATUS

Items of Recreation Progress

A CAMPAIGN is being conducted in Duluth, Minn., for a second municipal golf course to be located at Lester Park, and to cost about $110,000.

Midland, Texas, has put into operation its new municipal recreation area, Cloverdale Park, after development work in which more than a year was spent.

Plans have been completed at Louisville, Ky., for a new recreation center building which will contain a fully equipped gymnasium, an auditorium, club rooms and a kitchen. The center will be operated the year round with diversified programs in charge of trained leaders.

The Board of Park Commissioners of Salem, Mass., is operating the city's steamboat pier as a public recreation center. In connection with this recreation pier, it has opened a refectory service.

Grounds surrounding the city waterworks at Temple, Texas, have been put into use as a public park under order of the City Commission.

St. Paul, Minn., is the owner of a new municipal forest at Lake Keller, not far outside the city limits. This was a gift of the Fourth District Minnesota Federation of Women's Clubs. Ely, Minn., has also recently dedicated a municipal forest adjacent to its municipal golf course. The planting of 3,000 trees was a part of the dedication ceremony.

A white marble shaft has been erected in the city park at Waconia, Minn., as the city's World War memorial.

A 20-acre community recreation center, with a pavilion, was opened during the summer season, at New Prague, Philadelphia. The pavilion was built by the local recreation experiment committee. Subcommittees on music, the drama, dance, and pageantry, also fine arts, are headed by leaders in these fields. The development is in line with the Philadelphia idea for making the recreation center a place where all the arts are fostered.

Fifteen supervised playgrounds were operated in Kansas City during the past summer under direction of Park Commissioner F. LeRoy Cooke.

A Park and Recreation Department went into operation in Roanoke, Va., in June, 1929. The city operates eight centers, seven of which are in municipal parks, and maintains a staff of seven women and two men.

The Playgrounds Association of Philadelphia opened 40 new playgrounds during the summer of 1929, and set apart sections of the city parks not otherwise used for play purposes, as a part of its efforts to keep children off the streets.

Items and Abstracts *for* PARK AND PLAYGROUND DEPARTMENTS

Municipal Golf Pays in Grand Rapids

THE operation of public golf courses by the local government authorities is accepted today in Grand Rapids, Mich., as a matter of course. It is not uncommon for more than 1,300 rounds of golf to be played on the four municipal courses in one day. These courses are not only self-supporting; they are operated at a profit to the city.

In 1924, the Department of Public Welfare, seeking to demonstrate its contention that the time had come for active, rather than passive, recreation, opened a nine-hole course experimentally at John Ball Park. Interest in municipal golf from that time on was rapid and sustained, according to an account given by A. E. Davidson in the *Michigan Municipal Review*. Mr. Davidson reports that at a nominal fee of 15 cents per round, or two rounds for 25 cents, the course was self-supporting from the start, and that last season, on an income of $6,685, it produced a profit of $2,189; 35,375 rounds being played by 23,839 patrons.

Following the success of this demonstration, the late Charles R. Sligh gave the city a long-time lease of 67 acres in the northern section, and advanced $9,500 toward its improvement as a second course. This course has a total length of 5,066 yards, par 66. On a fee of 50 cents per round, 35 cents for 9 holes, or 75 cents for a day's play, it showed a profit of $8,233 in the 215 days of permitted play last season. The season's receipts were $22,834, and maintenance, $14,601.

In 1928, the Indian Trails municipal golf course was completed and opened on a 100-acre section of Woodlawn Cemetery property that will not be needed for cemetery purposes for a number of years. Although opened late in the season, it showed an operating profit for its first year of $3,390. A second small course, opened this year at Highland Park, has not entirely met the demand.

Municipal golf in Grand Rapids has been shown to "provide for the citizens of the city wholesome, healthful recreation under natural conditions, utilizing leisure time in a character-building way and attracting the youth and adult out into the open and perhaps away from undesirable places and conditions."

Keeping Down Playground Repairs by Painting

CONSISTENT repainting will add years of service to swings, seesaws, and other stationary playground equipment, hence a knowledge of the fundamentals of good painting should be a part of the stock in trade of every playground caretaker, according to an article by Helen B. Ames in *Playground and Recreation*, issue of September, 1929. Miss Ames sets forth these fundamentals under three heads: The Best Time to Paint; Selection of Paints; and Applying the Paint, in substance as follows:

Painting should be done when the thermometer is between 40 and 85 degrees and when the weather is dry, since favorable weather conditions have much to do with satisfactory results. Repainting should be done before the old finish becomes too dilapidated to avoid cracking and peeling. The life of a good paint job is generally from three to five years, depending on climate and treatment.

A high-grade paint should be used. It will ultimately prove most economical. Inferior products do not give the same coverage nor the same service. For repainting, a good grade of house paint will do for both wood and metal. Cast iron, to be given the utmost protection, should have a final coat of spar varnish.

Before painting begins, everything should be thoroughly cleaned by turning on the hose. Grease spots should be removed by vigorous rubbing with turpentine or benzine. Rust is generally removed by use of a coarse emery cloth or a stiff wire brush. Repainting will prevent further rusting, but will not stop corrosion if any remains beneath the paint. Cracked paint should be carefully removed by scraping or with paint remover.

Three coats may be necessary if the color is to be changed.

"And right here let me suggest that a bright new color will go a long way towards arousing a fresh interest in outdoor activities," says Miss Ames. "Children are very responsive to gay colors, and it costs no more to paint the swings and slides a gay apple green than to stick to the same old colors of dark green or sober grey. . . . Deep yellow and orange are used in many places."

It is recommended that portable equipment come under the program of systematic protection, too. Golf clubs and croquet mallets last much longer if given a coat of spar varnish at the end of the season. This will keep them from drying out during the winter and will prevent the heads from falling off the following season, and—on the golf links, at least—painful accidents.

"Upkeep is a necessary part of every playground budget, but with regular painting, repair costs may be cut down to a minimum."

Turn to Pages 113 and 130

—and read "Drama Brings Magic to the Playgrounds," and "Maryland Plans Rock Creek Park Extension." The Forward Steps department (page 145) also contains various park and playground items.

The Voting Machine is saving Thousands of Dollars every election in more than 2,000 Communities

Specific information regarding the money saved by other communities through the use of voting machines will be sent you upon request. Address Department A-13

IN marked contrast to the paper ballot, the modern voting machine assures a high degree of efficiency in conducting elections and makes possible substantial savings in election costs.

The experience of cities and towns all over the United States has demonstrated that, with voting machines, the election expenses have been materially reduced. In some cases they have been cut in half. The economy of machines permits them to pay for themselves and save money for the taxpayers.

Voting machines open an avenue toward substantial savings in administrative costs that meets with instant and continued favor of officials and public alike.

Automatic VOTING MACHINE CORPORATION
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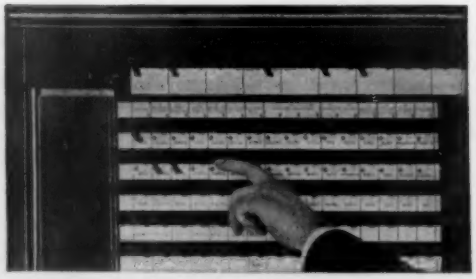
FACE of voting machine showing mechanical indicators. No pencil is needed to vote, thus elminiating spoiled ballots. The voter cannot disfranchise himself.



Municipal Attorneys to Consider Changes in New York Public Service Commission Law

AT A meeting held in the City Hall at Albany, N. Y., under the auspices of the New York State Conference of Mayors and Other Municipal Officials, on September 10, the corporation counsels and village attorneys present, numbering about fifty, authorized the appointment of a committee of seven by President McLaughlin of the Conference, to prepare and submit recommendations to the temporary commission appointed by the Legislature to investigate the operation of the Public Service Commission Law, which has been the subject of much criticism (see THE AMERICAN CITY for March, 1929, page 161).

At the meeting, presided over by Corporation Counsel H. B. Bruce, of Syracuse, two somewhat diverse forms of attack on the Public Service Commission developed. Mayor Cornelius Burns, of Troy, represented the viewpoint that the Commission is too aloof from the public's interest, which must be upheld by the cities at an expense well-nigh prohibitive except to the largest; while Corporation Counsel Arthur J. W. Hilly, of New York City, expressed himself as satisfied that the Commission refrain from the prosecution of cases, but give the cities a greater opportunity than they now have, to appear as parties in all cases where the public is involved. An alternative suggestion by Assistant Corporation Counsel Hurley, of Buffalo, was that a special department be created in the state Attorney-General's office to prosecute public utility cases in the interest of the cities and the consumers, thus accumulating a valuable fund of information and experience.

Legislative Act of State in Altering Municipal Boundaries Held to Be Regular

"A MUNICIPAL corporation has no power, except such as is given to it by the Legislature, which may modify or recall it," declared the Appellate Division of the New York Supreme Court in the case of City of New York vs. Village of Lawrence, 232 N. Y. Supp. 273. Except as restricted by the Constitution, the Legislature has power to divide the geographical subdivisions of the state in any manner deemed by it proper."

The city of New York sued to enjoin enforcement of an act of the General Assembly annexing certain territory to defendant village. It was not denied that the General Assembly had power to do this, but was claimed that the law was a local one relating to the "property, affairs, or government" of a city, and therefore required, under a provision of the Constitution, an emergency message by the Governor and the concurrence of two-thirds of the members of both houses of the Legislature. The court decided that this was a measure relating to "other than property, affairs or government" of a city, and therefore covered by another provision of the Constitution, with which there was compliance.

Items and Abstracts *for* FINANCE AND LEGAL DEPARTMENTS

The Case for Zoning, Briefly and Forcefully Presented

DOES your municipality effectively regulate the use of property, the height and bulk of buildings, the area of yards, courts and other open spaces, and the density of population, by means of a zoning ordinance?

If it does not, your municipality is not in the line of progress. Until it does adopt and effectively enforce a zoning ordinance, it cannot properly guide and control its future development.

Zoning does not restrict the citizens' rights, as many suppose, but protects their rights against exploitation by the few.

Zoning aids in the general growth of the city or village by bringing order out of chaos. Zoning tends to stabilize rather than depress real estate values. In addition it

Promotes public health and peace and quiet in residential districts;

Enables a community to plan a functional street system, and to effect large economies in designing sewer, water, lighting and paving systems;

Permits the adoption of a more economical policy in the matter of street paving;

Reduces street congestion, accidents and fire hazards;

Reduces the amount of dust in residential districts;

Protects residence districts against offensive odors;

Renders easier the problem of providing new and protecting existing school facilities;

Simplifies transportation problems.

Zoning is no longer an experiment; it is now in operation in 500 American municipalities. Among these are 27 cities and 25 first-class villages in New York State.

Zoning is not effective if the ordinance is not intelligently enforced or if made the football of politics.

A zoning ordinance may be prepared either by experts employed by the municipality or by a committee of local officials and citizens.

—From a bulletin of the New York State Conference of Mayors and Other Municipal Officials.

The Municipal Bond Market

By SANDERS SHANKS, JR., EDITOR, *The Bond Buyer*

THE bond market has been declining steadily for more than a year and a half. The extent of the recession in values may be measured by comparing the net interest rate at which representative cities were able to borrow during the early months of 1928 with the terms upon which such communities have negotiated loans in recent weeks. For instance, in May of last year, Pontiac, Mich., School District borrowed at 4.14 per cent. The net interest rate on the bond issue sold by that District a few weeks ago was 4.70 per cent. Long-term municipal credit has advanced from an average price of 3⅞ per cent to an average price of 4½ per cent on the current movement.

The public official whose duty it is to provide the funds to finance permanent improvements is confronted with a difficult problem. Bond values today are about half-way between the high level of early 1928 and the prices recorded in 1920 and 1921. Which way will they move during the next six months?

State Comptroller Tremaine of New York apparently believes that the bond market will be better by next spring. After a "thorough canvass of the financial situation" he has borrowed $28,000,000 for eight months on notes instead of selling long-term serial bonds. The notes will be replaced at maturity by bonds.

The outlook for the bond market is highly confused. Some of the most experienced bond men in the business feel that municipal bonds must sell at prices to yield a half of one per cent more than they do today before there can be any broad demand for them. Others see a turn in the market just ahead and visualize the most active bond market the country has ever experienced.

In the writer's opinion, the soundest rule for the public official to follow with respect to the bond market is this: the best time to sell bonds is when you need the money!

The following representative list of municipal bond sales indicates the trend of the bond market at the present time:

Amount	Municipality	Rate (%)	Maturity	Net Basis (%)
$64,000	Wakefield, Mass.	4½	7½-yr. (avg.)	4.33
11,000,000	Illinois State	4	24 5/6-yr. (avg.)	4.50
199,000	Gary, Ind.	4¾	19 2/3-yr. (avg.)	4.66
75,000	Darien, Conn.	4¾	1-15-yr. (serial)	4.72
1,720,000	Seattle, Wash.	4½ & 5	15-yr. (avg.)	4.812
100,000	Poweshiek Co., Iowa	5	9½-yr. (avg.)	4.85
380,000	Harrison, N. Y.	5 & 5¼	14½-yr. (avg.)	5.03
185,000	Perth Amboy, N. J.	5¼	21⅝-yr. (avg.)	5.21
10,560,000	Chicago, Ill., Sanitary Dist.	4½	1-20-yr. (serial)	5.32
290,000	Kershaw Co., S. C.	5½	9¾-yr. (avg.)	5.39

Guardian of the City's Air

It is difficult, perhaps, for the hurried citizen to read the rich significance of all he sees. That building there, for instance, his city's Sterling Destructor plant, is merely another pile of stone and steel to him. But if he saw penetratingly, he would know it for the guardian of the air he breathes, for the guardian of its purity and sweetness.

The disposal of garbage and refuse in a Sterling Destructor can never give rise to offense. In the furnaces, where it is consumed in an intense fire of its own providing, every gas is completely oxidized. From those furnaces the gases pass to the stacks, sterile and odorless, and mingle imperceptibly with the air.

And there is more to the story than that. There are the construction and economy phases, told in the Sterling Destructor Booklet. Write for a copy.

THE C. O. BARTLETT & SNOW CO.
6220 Harvard Ave. Cleveland, Ohio

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Refuse Disposal Plants

An Appraisal of the Strength and Weakness of Civic Organizations

THESE groups[civic organizations] are recruited from, and largely supported by, the middle class and the benevolently minded well-to-do. On many measures their lead is followed by the community, unconsciously perhaps. Several factors prevent their more effective leadership. Among these are the frequent lack of an aggressive attitude on public utility questions, on which their members are divided; the avoidance of, or relative indifference to, the interests of the labor group; their relatively weak representation among the nationalistic groups; their lack of technical intelligence in the scientific sense. Business interests are likely to look upon them as radical; labor interests as conservative; politicians as meddlers and cranks; graft interests as dangerous foes. Thus the civic organizations, while they are strong at many points, are weak at others, identified in most quarters with sincerity and zeal, but also with narrowness and class affiliation. . . .

Admirable "civic work" has been done by many of the business organizations, particularly in the field of public improvements, of charities, and finance. But there are cases where their interests do not coincide with those of the bulk in the community. Here they find themselves frequently at odds with the many and in bitter and deplorable struggles with the mass of the people on the question of franchises, public ownership, strikes, schools or other similar problems involving the respective rights of the many and the few. And in these contests it is that they are likely to lose much of the prestige they otherwise enjoy as public-spirited servants of the community. . . .

In general, women's city clubs have shown more vigor and enterprise in the last few years than those of men, although why they should remain separated is a matter for tradition to answer, rather than modern intelligence. In general, these organizations have suffered, however, from the same difficulties that men's reform organizations have encountered, namely the lack of adequate representation from the labor groups and from the various nationalistic groups.

—From "Chicago—A More Intimate View of Urban Politics, by Charles E. Merriam (copyrighted, 1929, The Macmillan Company, New York). See pages 137 and 138 of this issue.

Firemen Cooperate with Chambers of Commerce

A UNIQUE plan to assure the closest possible cooperation between the local Fire Prevention Committee and the Fire Department is being developed satisfactorily in Dallas, Texas, and Memphis, Tenn., the National Fire Protection Association reports.

In both cities, a captain of the Fire Department has been assigned to the Chamber of Commerce to work under the auspices of the chamber fire prevention committee and to assist wherever possible in the practical application of the local prevention program. This plan has made possible a more definite and diversified fire prevention program each year, and its effectiveness is reflected in the fire loss records of those cities. Memphis has reduced its total fire loss from $1,034,000 in 1925 to $538,000 in 1928, which in terms of the per capita loss means a drop from $5.44 in 1925 to $2.55 in 1928. Dallas, although its record is not nearly so striking, has witnessed a reduction from $2,131,000 in 1925 to $1,491,000 in 1928, or a per capita cut ranging from $9.27 in 1925 to $6.53 in 1928.

Some idea of the assistance which these cooperating fire officers give in Dallas and Memphis may be gained from a brief mention of their activities in those two cities. They assist the Chamber of Commerce Fire Prevention Committee in planning the local year-round prevention program, make contacts with the heads of fire, building, school, police, water and health departments, and coordinate the Chamber of Commerce program with that of the Fire Department.

Other cooperation takes the form of a study of local fires and means to check them, the organization of fire prevention programs in the schools, direction of special campaigns such as Fire Prevention Week, Clean-Up Week, etc., and the supervision of a general publicity campaign, including talks before local service clubs.

It is not intended, of course, that the work of these special officers should supplant that of existing agencies, but rather that it should supplement it. In Memphis and Dallas the local Fire Departments are reported as feeling these assignments are well worth while. The officer detailed to the work, however, should possess the qualifications of character and personality necessary to carry out the diversified program for which he is responsible. The National Fire Protection Association states that much of the success of the work in the two cities named has been due to the careful selection of the officers.

Rules for Eluding the Unapproved Solicitors

A CHAMBER of commerce publications have been devoting an unusually large amount of space recently to the most effective means of discouraging the undesirable and annoying solicitation and advertising schemes which are cropping up constantly in every community.

A special chamber of commerce committee which passes on all such enterprises is in existence in practically every community attempting to solve this perplexing problem. But despite the general effectiveness of these committees, many chambers are finding it difficult to cope with this nuisance, because of the lack of proper cooperation on the part of some of their members.

It is believed, in most instances, that this lack of cooperation is due more to the inability of the members to detect such schemes than to any prevalent desire to subscribe, regardless of the special committee's admonitions. To educate business men and householders in protecting themselves against these unapproved solicitors, the Association of Commerce at Urbana, Ill., has compiled the following list of "don'ts" for the guidance of its members. That chamber contends that "forewarned is forearmed" and that the effectiveness of its special committee can be doubled if the instructions to members are followed. They are offered here with the thought that perhaps other chambers of commerce will be interested in following some such system of warning.

Don't give aid to an individual without first getting in touch with the proper organization for handling such a case.

Don't give cash at the door.

Don't make checks payable to the solicitor. Ascertain the treasurer's name and address, and mail the check.

Don't pay for advertising in advance, but demand proof of publication.

Don't rely entirely upon credentials or lists of subscribers. Some lists are fictitious.

Don't stamp or sign a subscription list.

Don't believe what the solicitor says simply because he makes a good impression.

Don't lend your name to any enterprise without first ascertaining the facts about it.

Don't contribute just because you recognize the name of the organization.

Don't subscribe by telephone.

Don't sign for a complimentary book or directory unless you know the facts concerning it. Your signature may show up a year later on some sort of a contract.

Don't, under any consideration, contribute just to get rid of a persistent solicitor.

Fireworks Ordinance Works Effectively in Detroit

A FIREWORKS ordinance in Detroit which was adopted last year through the efforts of the Board of Commerce Fire Prevention Committte, has proved very effective, according to the National Fire Protection Association.

There were no fires from fireworks in Detroit on Fourth of July of 1929, and not a single injury was reported to either the Police Department or the local hospitals. Instead of individual displays, the city through its Department of Recreation conducted impressive displays of night fireworks in seven different city parks.

Attention Is Called to

"Industrial Financing Plans — Further Light on Campaigns for New Factories," and "First Year's Operation of Citizens Aid Building [Minneapolis] Justifies Centralization of Welfare Groups" in this issue. See pages 162 and 168 for these articles. Shorter articles of special interest are at pages 151 and 181.

Items and Abstracts *for* CIVIC AND COMMERCIAL ORGANIZATIONS

CARRYING Power vs. Horsepower

AT OCONOMOWOC WISCONSIN

GREATER CARRYING POWER

MORE DISTINCT CODE

GREATER SIMPLICITY

CARRYING Power and not **Horsepower** is the true measure of a siren's efficiency—this was strikingly demonstrated in tests recently conducted by the officials of Oconomowoc, Wisconsin.

A **5-hp.** Gamewell Codewell was set-up alongside of a **10 hp.** coding siren of another manufacturer which, it was explained, represented their latest development. The tests which followed were witnessed by the Mayor, Fire Chief and three members of the Oconomowoc Fire Committee; also three representatives of the other manufacturer and two Gamewell representatives.

The results of the tests showed:

1. At a distance of 1½ miles from the location of the Codewell and other siren, the Codewell was clearly more powerful and distinct in every case.
2. The code produced by the Codewell could be readily distinguished close at hand or at a distance.
3. The code produced by the other siren could not be readily distinguished close at hand and was weak at a distance.
4. According to the opinion of the official in charge of the installation of both, the Codewell was less expensive to install.
5. It was also the opinion of the same official that the Codewell was less complicated in its construction than the other siren.

The combined opinion of the Oconomowoc officials was that the **5-hp.** Codewell had demonstrated in a fair test, its superiority over the **10-hp.** siren. Further tests conducted with the Codewell, and two additional sirens brought in by the same manufacturer, served to further convince the officials of the superiority of the Gamewell Codewell, which they purchased.

If you are in the market for a coding siren, we shall be glad to give you further details of how the Codewell has won other tests.

THE GAMEWELL COMPANY

"A Box A Block"

Newton Upper Falls, Mass.

Items and Abstracts *for* DEPARTMENTS *of* PUBLIC SAFETY

Police Conference to Be Held at University of Chicago

THE University of Chicago will hold its first police conference November 11 and 12, 1929. Chief August Vollmer, now a member of the University of Chicago faculty, will be the director of the conference, Chief William P. Rutledge of Detroit will be associate director, and Mr. Bruce Smith of the Institute of Public Administration, who is now directing a survey of the Chicago police, will be consultant.

The conference is called to discuss the way of preparing the uniform annual police report recently recommended by the Committee on Uniform Crime Records of the International Association of Chiefs of Police, called "A Guide for Preparing Annual Police Reports." Several departments have already issued reports in accordance with this guide, and it is hoped as a result of the conference to extend its use very rapidly.

The conference will also discuss the second report of the Uniform Crime Records Committee on methods of keeping and reporting accurate and uniform records of offenses known to the police. Although the national reporting scheme proposed by the committee has not yet gone into effect, pending action at Washington, the new methods will be carefully explained so that police departments can rapidly introduce them.

Police departments in every part of the United States are cordially invited to send one or more representatives to this conference. The meetings will be held in the New Social Science Building, University Avenue and 59th Street. There will be a meeting each morning at 10:30, and another session in the afternoon at 2:30.

Further information may be secured by writing to Chief August Vollmer, University of Chicago.

Preventing Garage Fires

SPECIAL attention should be given to the problem of preventing garage fires, as they usually are difficult to handle and nearly always result in heavy losses, the Industrial Commission of Wisconsin points out in a recent bulletin.

Constant vigilance and good housekeeping are urged as the chief means of eliminating such fires. The Commission adds that gasoline and oily waste are the two main causes of garage fires and, by their very composition, stimulate the flames. The main supply of gasoline should always be stored in underground tanks, no gasoline in open vessels should be kept or used in garages, and gasoline or lubricating oils on floors or in metal floor pans should be cleaned up and frequently removed, the Commission advises.

It is also desirable to keep oily waste and rags in standard, self-closing metal waste cans when not in use, rather than to leave such material on workbenches, shelves and floors, in corners or closets.

"With gasoline and its fumes present, the danger of fire and explosion is imminent, since there are always contributing causes such as the match and smoke hazard, back-firing of cars, blow-torches, short-circuits in electric wiring in the building and in cars and trucks, lanterns and defective trouble lights, electric drills, sparks from working tools, stove heat, etc."

Pittsburgh Learns About Fire Prevention Bureaus

THE Life and Property Committee of the Pittsburgh Chamber of Commerce, which is striving to have a fire prevention bureau established in that city, has gathered some interesting data on the success of such bureaus in other cities.

Any municipality which is in the least skeptical about the advantages of maintaining an active fire prevention bureau may well take note of the following comment appearing in *Greater Pittsburgh*, the Chamber of Commerce magazine, regarding the facts obtained by the Committee.

"One city reports that since the operation of its bureau in 1922, the annual per capita fire loss has, in only one instance, been more than $2, whereas, prior to the organization of the bureau, such losses ranged from $5 to $7 per capita. Another city reports that before the introduction of organized fire bureau supervision, the per capita loss averaged $2.42, while in 1928 it was only 57 cents. A third city states that the savings to citizens through reduced fire losses more than pay for the upkeep of the bureau.

"In Denver, a bureau was established in 1923, and it is reported that since that time there have been two reductions in fire insurance rates—6 per cent in 1925 and in 1928, a reduction of 15 per cent on buildings, 7 per cent on contents, and 10 per cent on dwellings. Los Angeles, where a bureau was organized in 1916, reports that in 1924 there was a cut in insurance rates which saved more than $1,000,000, and that a further cut has been announced which will save another $600,000 annually.

"San Francisco reports that since the establishment of its bureau in 1920, there has been a cut of approximately 10 per cent in fire insurance rates. Other cities claim reductions in various amounts, those in Cincinnati and Washington running as high as 33 per cent.

"A department of the Chamber of Commerce cooperates with the Fire Prevention Bureau in Los Angeles by conducting annually a 'good housekeeping campaign,' and arranging for inspection and educational work in the schools."

Traffic Signals Reduce Baltimore Traffic Toll

AN analysis of traffic accidents at street intersections in Baltimore indicates that the automatic traffic signal is proving very effective in reducing the number of such accidents.

There were 419 traffic accidents at all intersections covered in the report issued by the Baltimore Safety Council for the first six months of 1927, before the signals were installed. In direct contrast, only 259 such accidents were recorded for the first six months of this year, with the signals in operation.

The casualties were: 1 person killed and 129 injured before the installation of the signals, as compared with 2 killed but only 92 injured after. A reduction in the number of accidents was reported at 32 intersections, following the installation of the signals, while 17 other intersections have shown little or no change as yet, and 10 actually have experienced an increase since the use of the signals.

Automatic Fire Vents Favored by Chiefs

LEGISLATION requiring automatic fire vents over all vertical shafts in buildings subject to fire hazards is to be sponsored by the Eastern Association of Fire Chiefs, it was decided at the recent convention in New York.

A resolution calling for the appointment of a committee to urge the enactment of such legislation was adopted by the delegates, following an address by Assistant Fire Chief Thomas F. Dougherty of the New York Fire Department, warning of the danger of back-draughts in structures not protected by such vents.

"Burns have been found to be responsible for only about 5 per cent of the lives lost in tenement and factory fires, and other similar conflagrations," Chief Dougherty said. "The remaining 95 per cent of the victims were not burned to death, but had their lives snuffed out by the superheated gases that ascended throughout the burning structure. They were dead, in most cases, before the flames reached them."

There Is Hope for Good Order in China at Last

FOOCHOW has remained a typical old-style Chinese city until the recent revolution which brought in modern ideas and modern forces with the coming of the Nationalist Party, according to a recent letter written by E. H. Munson, General Secretary of the Foochow Young Men's Christian Association, who placed especial emphasis upon the aid received from THE AMERICAN CITY in local problems that have arisen during the past year:

"The material found in THE AMERICAN CITY is most suggestive, and we are glad to give it to the Chinese officials who are planning the new development in road construction, sanitation, etc., which is now making rapid strides throughout all China."

He adds, "The police of this city are now carrying policemen's clubs copied after a picture in one of the recent numbers of your magazine."

1. DOES IT KINK?
2. IS IT WATERPROOF?
3. HAS IT A SMOOTH WATERWAY?
4. IS IT STRONG, PLIABLE AND DURABLE?

—all these points should be carefully considered when selecting *fire hose*—

1st—*Kinking*:—We shall be glad to explain to you why it is that Fabric Fire Hose does not kink or twist under pressure.

2d—*Waterproofing*:—The absolute waterproof quality of our cotton fabric is accomplished by running each thread of cotton through a mixture of melted wax and para gum.

3d—*Smooth waterway*:—We guarantee a smooth waterway during the entire life of the hose, thereby assuring a gain in water-conducting capacity of 25 per cent.

4th—The *strength, pliability and durability* of Fabric Fire Hose are due to the fact that it is made like an automobile tire, with inner tube and outer jacket. The jacket, if damaged, can be replaced. For 100% Satisfaction, Specify *Fabric Wax and Para Gum Treated Fire Hose.*

Fabric Fire Hose Company

9-15 Park Place, New York, N. Y.

124-126 W. Lake Street, Chicago

BRANCH OFFICES:

Chicago, Ill.	Minneapolis, Minn.	San Francisco, Cal.	Binghamton, N. Y.
Atlanta, Ga.	Dallas, Texas	Baltimore, Md.	Pittsburgh, Pa.
Columbus, Ohio	Portland, Ore.	Boston, Mass.	Bloomfield, N. J.
		Montreal, Canada	

S. H. HANSEN
Fire Chief, Duluth, Minn.
(Appointed 1927)

OWEN C. DUNN
Fire Chief, St. Paul, Minn.
(Appointed 1924)

C. W. RINGER
Fire Chief, Minneapolis, Minn.
(Appointed 1911)

D. K. FITCH
Police Chief, Salina, Kans.
(Appointed 1926)

CHARLES E. McILLHARGEY
Fire Chief, Hibbing, Minn.
(Appointed 1909)

WHO'S WHO IN PUBLIC SAFETY

A Series of Portraits of Fire and Police Chiefs, Which Have Appeared Monthly Since the January, 1928, Issue

EDWARD MEAD
Fire Chief, Hastings, Nebr.
(Appointed 1903)

ORVEL THOMPSON
Police Chief, Okmulgee, Okla.
(Appointed 1926)

JACK GRAHAM
Police Chief, Parsons, Kans.
(Appointed 1929)

V. H. STEELE
Fire Chief, Billings, Mont.
(Appointed 1918)

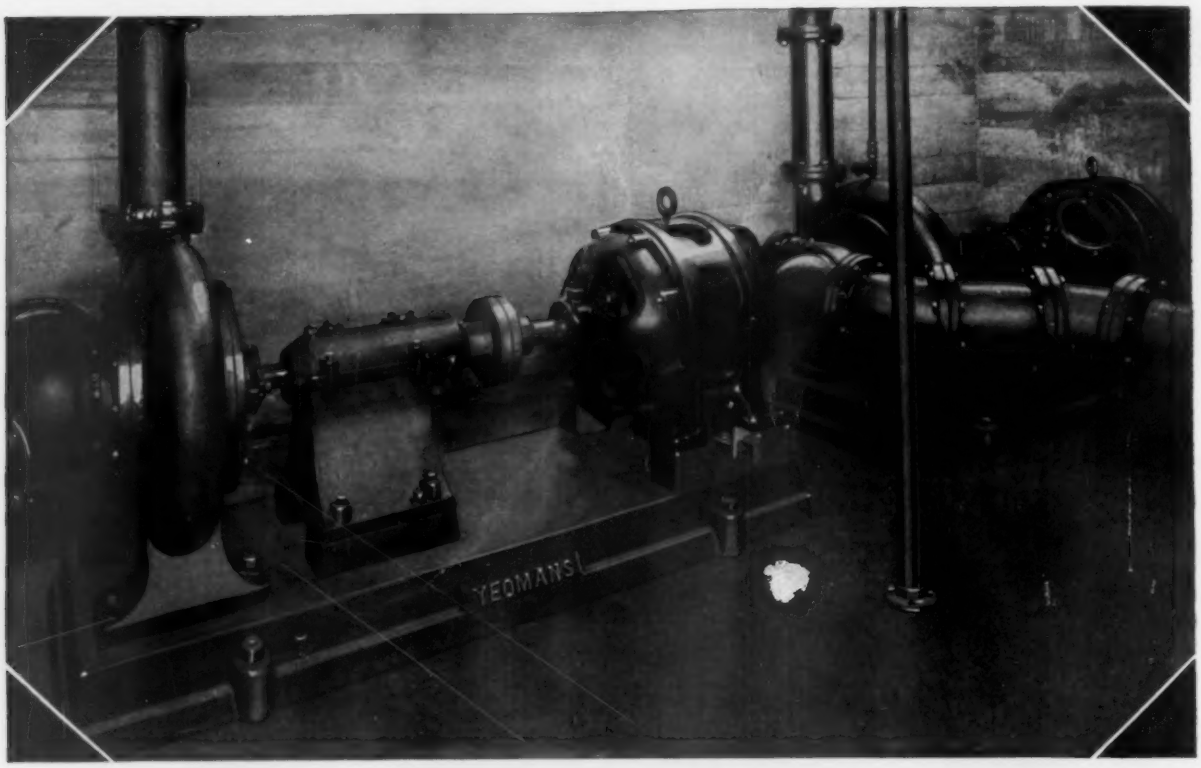
JOHN M. EVANS
Fire Chief, New Orleans, La.
(Appointed 1920)

T. J. BRUMLEY
Police Chief, Sapulpa, Okla.
(Appointed 1928)

THOMAS M. DILLON
Fire Chief, Grand Island, Nebr.
(Appointed 1909)

E. A. NELSON
Fire Chief, Guthrie, Okla.
(Appointed 1927)

CHESTER NAESETH
Police Chief, Hibbing, Minn.
(Appointed 1928)



80 Foot Head Sewage Pumps for Shreveport, La.

Four unusual non-clogging sewage pumps were built for the City of Shreveport, La., two of which have capacities of 1000 G.P.M. and two, 1500 G.P.M. They operate against a maximum head of 80 feet and pass from 4 to 5 inch solids.

High head sewage pumps capable of passing large solids are not just ordinary pumps. They are highly special; and these Shreveport machines had to be built by engineers thoroughly experienced in every phase of sewage pump design and construction.

The Yeomans organization has specialized for 30 years on this type of equipment, having successfully built hundreds of pumps to meet difficult conditions. T. L. Amiss, the Shreveport engineer confidently entrusted the job to Yeomans and the pumps are now giving the city complete satisfaction.

It Required Specialists To Build Them

YEOMANS BROTHERS COMPANY - - - 1417 Dayton Street, Chicago

Yeomans Pumps

Sewage and Drainage

YEOMANS PUMPS • GIVE YEOMAN SERVICE •

OCTOBER, 1929
Vol. XLI, No. 4

The American City

443 Fourth Avenue
New York
50 Cents, $4 a Year

A Platform of Progress for Municipalities and Counties:

1. ***City and regional planning and zoning for spacious development***
2. ***Streets and roads that are well built, well lighted, well cleaned***
3. ***An abundant supply of pure, soft, palatable water***
4. ***Sanitary and economical disposal of sewage and garbage***
5. ***Fire and police departments properly trained and equipped***
6. ***Thorough and uniform traffic control; fewer grade crossings***
7. ***Plenty of parks, parkways, playgrounds, and swimming pools***
8. ***Administrative efficiency and citizenship aid in bringing these things to pass***

It Pays to Plan*

By THEODORA KIMBALL HUBBARD
Honorary Librarian, American City Planning Institute
and
HENRY VINCENT HUBBARD
Professor of Landscape Architecture, Harvard University

CITY planning does pay, just as any other kind of reasonable foresight pays. Locking the door after the horse is stolen is neither sensible nor economical for the farmer; neither is it sensible for cities to wait until mutually inimical uses of land are all jumbled together, until buildings are crowded on the land without regard to public health or street capacity, until streets are so congested that citizens are delayed and inconvenienced day after day, until fair opportunities for public parks and playgrounds are irretrievably closed by the haphazard spread of private enterprise.

Many cities undertaking planning regret the neglected opportunities now patent when foresight comes to be applied to areas still undeveloped. Regret can serve no useful purpose except to confirm the community in its determination henceforth to grow according to plan, and to help itself and other communities to avoid the same mistakes.

Losses from Lack of Planning

"Proofs of the difficulties which arise from neglect of the elementary principles of city growth are numerous and convincing." As Mr. Hoover pointed out in the foreword to the Department of Commerce City Planning Primer, "City planning is going on about us every day in our cities and towns. . . . The planning may be done bit by bit by private land owners and city officials, few of whom know or can know, what the others are doing or have in mind." This is the kind of planning that has made for ugliness and waste. We can see it with our own eyes in thousands of communities.

In surveying the actual losses and wastes plainly apparent in American cities, we find that perhaps the most wanton of all have come from the *needless changes in uses of property* resulting in "blighted districts." The Zoning Primer of the Department of Commerce did not exaggerate in stating six years ago that "dwellings worth in the aggregate millions of dollars for the purpose for which they were built, and physically fit to serve those purposes for many years to come, with a moderate investment in alterations and improvements, are thus annually abandoned to purposes for which they are not fit, or are left to stand practically idle. Expensive public services of water, gas, electricity, sewers, and transportation are maintained at great waste in order to get through the 'blighted district' to the more distant and newly fashionable location."

In New York a blighted business district was created by the mingling of industry with shopping in lower Fifth Avenue, which was one of the immediate stimuli to securing a comprehensive zoning ordinance for New York. Other outstanding examples are the great blighted district in St. Louis, now being rehabilitated, and the West End of Boston prior to the restoration of Beacon Hill.

Poor platting and housing resulting in

"Our Cities Today and Tomorrow"

is the title of a book of about 300 pages soon to be published by the Harvard University Press, of which the accompanying article comprises Chapter XVII.

Under a grant from the Milton Fund of Harvard University, the authors have conducted a rapid field study of planning progress in this country, covering about 120 cities and 15 regions in 42 states. The results are summarized in this book. The long and intimate familiarity of the authors with both theory and practice in this field has enabled them to present, with the findings of the Milton Fund study, a bird's-eye view of municipal progress in city planning and zoning, and to picture in graphic outline the backgrounds of a new social movement.

*Copyright, 1929, by Henry V. Hubbard.

slums, urban or suburban, have been responsible for enormous social and economic wastes. Few cities admit having slums, as revealed in recent nation-wide inquiries conducted on behalf of an improved housing proposal; but many cities have slums nevertheless. Some of the slums are congested in blighted central sections, and some are miserable agglomerations of shabby shacks on outlying land prematurely and unwisely platted. When the growing city engulfs these, replanning to attain any reasonable measure of sanitation and convenience involves the public treasury in inordinate expense.

Traffic congestion has been the most loudly proclaimed cause of losses from lack of planning. The staggering figures, given by the Regional Plan of New York, of $500,000 per day on Manhattan Island alone, give some hint of the total annual losses suffered by the citizens of the whole United States. Bound up with money losses are the far more terrible losses of life resulting from traffic accidents partly attributable to dangerous defects in street plans.

Piecemeal construction of sewerage and drainage systems and piecemeal street openings account for large losses to public treasuries, discoverable in many cities.

Scattering of industries resulting in expensive haulage raises the cost of living to the consumer and of street maintenance to the city.

Poor distribution of population in relation to business and industry, resulting in unnecessary transit and transportation, is a heavy charge in the great city of New York and to a less degree in many smaller cities.

Delay in acquiring public recreation areas is everywhere reported costly, to public health and well-being if the need be long unsupplied, and to municipal treasuries if adequate provision be made in densely built-up areas.

Carelessness of civic appearance has resulted in countless more intangible losses, visible in neglected stream banks, ugly business districts, barren residential neighborhoods, cluttered city streets, and unimpressive public buildings.

In scrutinizing the comments on tangible losses and neglected opportunities made to our field representative in the course of his visits, we find that many cities are well aware of some or all of these losses. Their magnitude, realized when the principles of city planning are once understood, strengthens public determination to avoid similar losses in the future so far as present experience and knowledge can teach the way.

Gains Secured from Planning

In our forthcoming book in discussing the various elements of city plans as these have been developed in planning programs, we have devoted a section to "observed beneficial effects"—of platting control, of zoning, of major street plans and measures for traffic relief, of park areas, and of improvements in civic appearance. It is worth while to sum up these gains and especially to corroborate the series of arguments for planning set forth in the Department of Commerce City Planning Primer, as thoroughly substantiated by observation and freely acknowledged in dozens of communities.

"Planning pays." The cost of a plan is reasonable in comparison even to its immediate benefits. Comprehensive zoning and control of plats exercised under the police power have cost only the sums expended in preparing plans and regulations. Zoning and plat control divide honors in being reported the most profitable results of city planning. The economic gains from municipal investments in replanning have been manifest in created property values and decreased congestion.

The control of land subdivision in newly developed areas has resulted in the dedication of many miles of major streets in accordance with comprehensive city plans (as in the regions of Detroit, Los Angeles, or Cleveland), in dedication or purchase at reasonable cost of parks and school sites (as in Memphis Cincinnati, or Akron), in economies in installation of public utilities (notably evaluated in Schenectady), and in general in preventing the need for replanning, which has presented itself vividly to dozens of planning commissions as an incentive to recent work.

Zoning is reported to have increased property values substantially in many cities and to have stabilized values in all the zoned communities visited, where a comprehensive ordinance has been in operation long enough to have an appreciable effect. The improvement in neighborhoods of low and medium cost homes is everywhere visible. The enhancement of values by wise foresight in selection of apartment house districts has been striking in St. Louis and Washington, D. C. The stimulation of appropriately placed local business centers is accounted a material social and economic gain in contrast to the previous scattering of small stores and the consequent creation of incipient blighted districts. It must always be remembered that the gains from zoning have been most substantial where zoning has been done as part of comprehensive planning or based on comprehensive data. Unrelated and piecemeal zoning was reported in several instances to have depreciated rather than increased property values. The social advantages, too, accruing to the community from zoning are bound to be greater when the apportionment of land uses has been made according to a comprehensively conceived plan for future development.

Replanning projects carried out as parts of city plans have returned substantial increases in taxes to the public treasury and vastly promoted public convenience. The rebuilding of the burned district in Baltimore largely according to the plans of the Burnt District Commission is reported by the city to have been a profitable investment. The street openings and widenings in accordance with the city plans of Chicago, St. Louis, Dallas, or Providence have enormously increased property values. The rehabilitation of the blighted district of St. Louis by street plan improvements and the new civic plaza is returning to the city a most satisfactory and increasing amount in taxes. Street plan improvements have been responsible for the desirable spread of central business districts in Pittsburgh, Knoxville, New Haven, and Omaha. The removal of railroad barriers in Chicago, Dallas and Louisville is just beginning to show the economic gain to the community.

The actual present profits to city and county treasuries from investment in park systems, as in Essex and Union Counties, N. J., or Westchester County, N. Y., have been published in dollars and cents; and similar, if less spectacular, increases in property values from public parks are universally reported. The social and economic benefits anticipated for future generations are being almost immediately enjoyed by the citizens who have contributed their modest share to the enterprise.

The real gains from city and regional planning are fundamentally human gains. In observing communities made safer, healthier, more convenient, and more beautiful, we can see the direct contribution to human welfare—to progress toward dignity in civic life, and order and happiness in individual relationships.

We Need More Facts on Planning Benefits

There are very few balance sheets to show in dollars and cents the value of comprehensive planning, and there are very few cities in which any attempt whatever has been made to appraise consciously in economic or social terms the results of planning, in the longer or shorter period during which control of growth has been exercised or planned public improvements carried out.

It is far easier to show in a general way that it is expensive not to plan than to demonstrate the total benefits of specific projects. Such a weighing and measuring of alternative schemes in preparing a budgeted city plan, such as

that of White Plains, N. Y., could well be made to show the comparative benefits of planning and lack of planning, if it were not that we can scarcely predict what might have been.

The man who tries on present data to generalize as to city planning benefits is much in the position of a doctor meeting a series of individual patients. Their condition in any case would not remain stationary: they might die or get well with or without his medicine. But if enough patients get well, he can begin to generalize and rely on the qualities of certain medicines for specific ills.

The world moves along, and lack of planning is revealed as an arrestation, a lack of progress, when judged by the progress of the rest of the world which has gone ahead with preventive and remedial planning. We are aware of deficiencies only by comparison and contrast, and similarly of benefits by comparison with our own past ills or ills observed in others.

The planning movement is just faintly beginning to show the findings of the "control experiment" of science. The reason we have so few concrete facts on planning benefits is because each community being a growing and changing organism, the only way we can positively know whether a new construction or reconstruction is profitable is to have a fairly complete financial statement of conditions in the region affected before the planned improvement and to have corresponding figures for a comparable area where no improvement has been made.

The reports issued by the National Capital Park and Planning Commission as to "Savings Effected by Changes of Street Plan" and "Open Valley Treatment of Sewers" are examples of the control experiment. The estimated benefits of public parks in the city and region of New York, beginning with the balance sheets of the Commissioners of the Central Park in the sixties, and coming to the figures of the Westchester County Park Commission today, are fully substantiated and convincing. The figures of the Chicago Plan Commission and the City Plan Commission of St. Louis on great street-plan improvements are similar appraisals.

We must conclude, however, that it is too soon to look for any extensive compilation of planning gains. They will be valuable as evidence only *as they are gains resulting from the carrying out of comprehensive plans*, studied and appraised in relation to the effect on the whole social and economic structure of the whole community. It would be well worth while, however, in the course of the next few years, to prepare an outline or guide by which communities undertaking city planning may evaluate the results obtained. Our principles will then be better formulated and our criteria of success more clearly determined.

The lack of present tabulated information to show why city planning pays should be counted neither a reproach to the leaders and citizens who are pioneering in this great endeavor nor a deterrent to the doubting in embarking on a city planning program. We cannot yet say safely *how much* it will pay in a given case, but we can confidently say: *Planning does pay.*

Future Gains

We have still to see the greatest goods predicted for comprehensive city and regional planning, and nowhere better set forth than in Mr. Thomas Adams's address, "Forecast: The Regional Community of the Future," before the joint meeting of the American Society of Civil Engineers and American City Planning Institute in 1926.

We have no desire to claim that more than glimmerings of these goods have yet appeared in our present urban civilization. We can affirm, however, that the trends already induced by planning cannot fail to result in better distribution of population and in closer integration of neighborhoods, in regional articulation of common services, and regional balance of industry and commerce; and that the measure of other gains will appear in the reduction of the cost of living, or better living for the same cost, and in fuller and richer lives for those who now are ground down by the narrowness of margin between work and its returns to the individual.

National Committee on Relief of Traffic Congestion Named

THE appointment of a Committee on Relief of Traffic Congestion has just been anounced by Secretary of Commerce Robert P. Lamont, supplementing two other committees recently appointed on Maintenance of the Motor Vehicle, and Protection of Railway Grade Crossings and Major Highway Intersections. These three committees will continue the work of the National Conference on Street and Highway Safety, of which Secretary Lamont became Chairman when Secretary Hoover became President Hoover.

"Traffic congestion and inadequate facilities for street and highway traffic constitute one of the foremost problems before us today," Secretary Lamont stated in announcing the appointment of the new committee.

"It is expected that this committee will study the most advantageous methods for meeting the many different problems of traffic congestion. Information will be developed and made available with respect to the improvement programs now under way in many American cities and applicable alike to the small community and the metropolitan centers."

The members of the Committee on Measures for the Relief of Traffic Congestion, of which E. J. Mehren, Vice-President of the McGraw-Hill Publishing Co., Inc., is Chairman, and Norman Damon, of the National Automobile Chamber of Commerce, Washington, D. C., is Secretary, include:

Fred W. Baer, President, International Association of Fire Fighters, Washington, D. C.
Harland Bartholomew, Consulting Engineer, St. Louis, Mo.
A. L. Belle Isle, President, Black and White Cab Company, Atlanta, Ga.
R. H. Boykin, Superintendent of Terminals, Erie Railroad Company, Jersey City, N. J.
Harold S. Buttenheim, Editor, The American City, New York.
W. W. Cloud, President, Yellow Cab Company, Baltimore, Md.
R. Keith Compton, Director of Public Works, Richmond, Va.
G. W. Daniels, New York.
Lewis A. DeBlois, Director, Safety Engineering Division, National Bureau of Casualty and Surety Underwriters, New York.
Mrs. F. H. Devere, Auburn, R. I.
Lee J. Eastman, President, Packard Motor Car Company of New York, New York.
D. C. Fenner, Mack-International Motor Truck Corporation, New York.
H. B. Flowers, President, New Orleans Public Service Company, Inc., New Orleans, La.
J. X. Galvin, President, Pennoyer Merchants Transfer Company, Chicago, Ill.
Stanley Good, Traffic Captain, Police Department, El Paso, Texas.
Harold M. Gould, Consulting Traffic Engineer, Police Department, Detroit, Mich.
W. H. Harland, Director of Traffic, Washington, D.C.
Charles M. Hayes, President, Chicago Motor Club.
Arthur M. Hill, Vice-President, Charleston Interurban Automobile Association, Charleston, W. Va.
Paul G. Hoffman, Vice-President, The Studebaker Corporation of America, South Bend, Ind.
Reyburn Hoffman, Traffic Engineer, St. Louis, Mo.
Alfred B. Koch, President, The LaSalle and Koch Company, Toledo, Ohio.
V. Everit Macy, New York.
Thomas MacDonald, Chief, Bureau of Public Roads, U. S. Department of Agriculture, Washington, D. C.
Burton W. Marsh, Traffic Engineer, Department of Public Safety, Pittsburgh, Pa.
Miller McClintock, Director, Erskine Bureau, Harvard University, Cambridge, Mass.
J. Gordon McKay, Director, Cleveland Highway Research Bureau, Cleveland, Ohio.
E. J. McIlraith, Staff Engineer, Chicago Surface Lines, Chicago, Ill.
William M. Nevin, Nevin Bus Lines, New York.
H. B. Potter, Vice-President and General Manager, United Railways and Electric Company, Baltimore, Md.
G. H. Pride, President, Pride Transportation Company, Brooklyn, N. Y.
Earl J. Reeder, Supervising Engineer, Public Safety Division, National Safety Council, Chicago, Ill.
Henry Reimers, Executive Secretary, National Furniture Warehousemen's Association, Chicago.
J. W. Roberts, Assistant Vice-President, Pennsylvania Railroad, New York.
William P. Rutledge, Commissioner, Police Department, Detroit, Mich.
Frederick L. Swetland, Cleveland, Ohio.
Chas. H. Tompkins, President, Chas. H. Tompkins Company, Washington, D. C.
W. A. Van Duzer, Assistant Chief Engineer, Department of Highways, Harrisburg, Pa
Col. William J. Wilgus, New York.

A few other names may be added later as delayed acceptances are forthcoming. The first meeting of the new committee is to be held at the Department of Commerce, in Washington, on October 10.

Macon Ousts Flat Rates and Develops A-1 Meter Record System

By R. E. FINDLAY
SECRETARY AND TREASURER, BOARD OF WATER COMMISSIONERS, MACON, GA.

EVERY public utility has its place in community life, and its relative importance is gaged by public demand or necessity. In cities of 100,000 population, or less, the street car, with its ever increasing fare and decreasing patronage, has already yielded its prestige to more satisfactory means of urban and suburban transportation. The telephone could be dispensed with and our people still carry on, but at an enormous sacrifice of time and convenience. The electric light could be switched off and the oil lamps of a generation or so ago would keep us from groping in darkness. We might cut off the gas and resort to cruder methods of cooking our meals and heating our water. But how long could the modern municipality exist without water?

Metered Water the Cheapest of All Commodities

Water, the most essential of all utilities, is the cheapest commodity that is universally used, notwithstanding the fact that every water system constitutes a monopoly—whether privately or municipally owned. In any water system the easiest and simplest method of distribution is through flat-rate services, involving no meters or meter reading. At the same time, this is the most expensive form of distribution, from the seller's viewpoint. Measured water is cheaper for the buyer, provided he keeps close tab on his plumbing and has an eye to conservation. In buying water through a flat-rate service the average consumer finds no incentive for conservation and, consciously or unconsciously, becomes a party to profligate, wanton waste. The one and only fair method of selling water—fair alike to buyer and seller, is by measure. Granting that the meter is reliable, the seller is authorized to bill, and the buyer is expected to pay, according to consumption as shown between two specified dates.

But a metered system is not without its trials and troubles. Meters must be maintained and the responsibility for maintenance lies, or should lie, with the water company, regardless of ownership. Meters must also be read periodically, and this means a corps of trained experts, for accuracy is essential. The meter represents both parties to an agreement and is the medium through which the company's revenue flows into its treasury, and likewise the medium through which "value received" flows into the premises of the consumer. It can readily be seen that the meter is a water-works essential, and, as such, its full history and its every phase should be shown by a complete, systematic record.

Up to a few months ago the city of Macon had more than 8,000 meters in use and about 4,000 flat-rate services. Through the latter we suffered an abnormal loss of water by reason of waste and plumbing leaks. Now that we are 100 per cent metered, our pumpage has decreased about one-third, effecting a saving of a worth-while amount in fuel.

In our efforts to maintain a satisfactory, workable system of records we very successfully employ such forms as are prescribed below. When application is made for a tap, we immediately issue form 1 for delivery to our service department. When we have made the tap and the service pipes have been laid (by the applicant's plumber), we then issue our order (form 2), to "Set and on," or "Set and off," as the case may be. This form is also used for any turn on or off, or a complaint involving an inspection or re-read.

If a meter is to be removed for a test or repairs, or any purpose whatsoever, we use form 3. When a meter reader returns from his route he is required to report on form 4 any and all meters he failed to read. If the meter is out of order, we have it removed for repairs. If a test has been ordered, a report is made to the consumer on form 5. Our tests are made on a Mueller outfit, furnishing complete and detailed information. Within the writer's recollection we have tested only one meter that showed as much as 5 per cent fast. Most meters, especially the smaller sizes, test slightly slow. We are also showing a specimen sheet from our meter readers' route book (form 6). This sheet has a capacity of five years and is used in two colors; the buff is for consumers inside the city, while the blue covers those outside, the water-rate for the latter being slightly higher. The color scheme is for the benefit of our billing department. What we consider one of our most valuable and interesting records is kept in the shop and handled as an index card system. This card (form 7 on the front) provides complete information as to size, make, etc., and a record of all tests. On the back (form 8) is space for a full record of repairs, including labor and material. Reference to this card shows at a glance the time a meter has been in use, the total registration and the exact cost of maintenance. This record enables us to make an accurate comparison of our experience with the various meters we use, or have used.

Standardizing Meters

We have in our system something like a dozen different makes of meters, and our experience with them as a whole has been very satisfactory. In the interest of economy, to simplify handling and avoid over-stocking on repair parts, we have for the past several years standardized on two makes, the total of the two constituting almost 75 per cent of the whole.

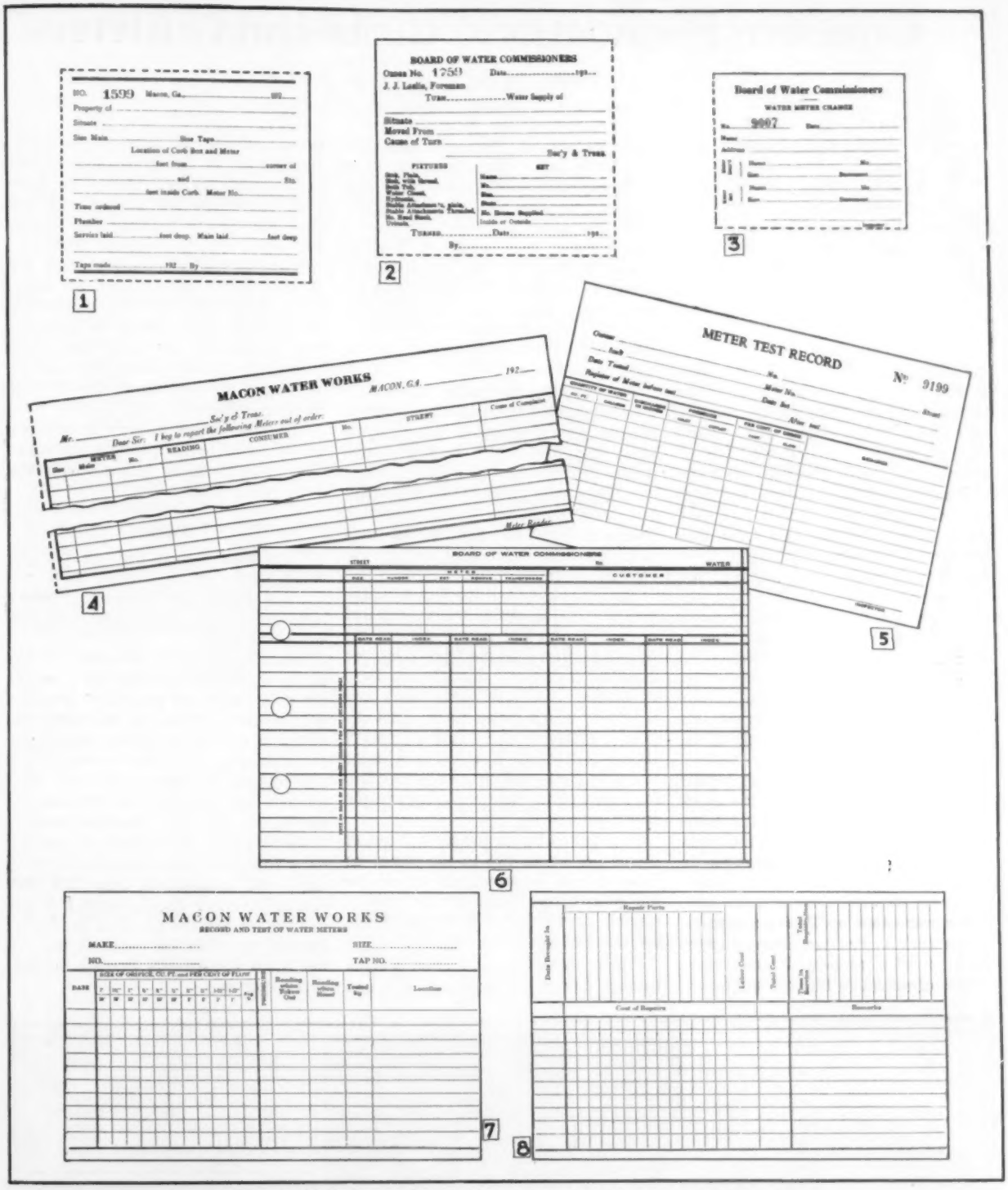
Reading and Billing

We bill monthly, and the reading dates, covering three zones, are the 5th, 15th, and 25th. Three men usually handle the reading, although there are several inspectors available for emergency use in case of delay due to unfavorable weather conditions or to other causes. Having no zero temperatures to contend with, our meters era all set at the curb, are easily accessible and expeditiously read.

Eliminate Flat Rates

During our recent crusade against flat-rate services, we employed method and system, one meter-setting crew at times, under favorable conditions, installing more than one hundred meters a week. We are thoroughly committed to the metered system and, in our opinion, no city has reached the highest standard of progress and efficiency until its water system is metered 100 per cent. If those cities that sell water wholly or partly through flat-rate services will make a careful check, they will soon be alive to the fact that the waste is appalling.

The tendency throughout the country is to improve and increase the municipal water-supply. Centers of population not favorably located, geographically, for pure running water, are commandeering huge bond issues to provide funds for piping water many miles from distant



THE WELL-CONCEIVED SET OF METER RECORD FORMS USED IN MACON, GA.

1. Form used when application for service is made. 2. Order to set meter and turn on water; also used for any complaint involving an inspection or re-read. 3. Form used when meter is to be removed for test and repairs. 4. Form used by meter reader at end of route to report all meters not read, or out of order. 5. Form for reporting to consumer that his meter is to be tested. 6. This form on buff or blue stock is used in the meter reader's loose-leaf book, buff for consumers inside the city and blue for those outside, who pay a slightly higher rate. 7. The face of the office index system card gives a complete history of the meter it represents. 8. Reverse of the index card, which gives a full record of repairs, including labor and materials

streams or lakes to meet an ever-growing demand. Some of the cities bordering the Great Lakes, with an inexhaustible supply of water at their doors, never dreamed of conservation until a governmental hint stimulated meter installation. Chicago, the second city of the United States, is reputed to be the largest consumer of water of any city in the world. Why? Because it is practically unmetered. The daily consumption that now approaches one billion gallons would perhaps drop to six hundred million, if there were a meter on every water service. Why not advocate conservation? Why encourage waste? The meter is a water-works essential. Its use should be mandatory. It is a silent partner in the enterprise, but in the case of Meter vs. Waste, it is quite a "loud speaker."

Concrete Foundations, Curbs and Gutters

By P. H. QUINLAN
Assistant City Engineer, New Orleans, La.

NEW ORLEANS has settled on a definite policy of providing concrete foundations for all of its heavy traffic streets. In conjunction with the concrete foundation, precast concrete curbs are used. This article will be devoted mostly to a description of the work recently completed on Peniston Street, with references to general practice.

Curb

Precast curb 5 feet long, 5 inches wide at the top, and 7 inches wide at the bottom, with the batter on the roadway side and a 1-inch radius on the front and 18 inches deep, is used for all straight-line curb. The curb slabs are reinforced with two ½-inch rods and are made with a 1:2:3 mix. All curb slabs, which are purchased from local contractors, have the Pittsburgh Testing Laboratory inspection seal on them.

At street corners and driveways, sections are cast in place, using a 4-foot radius on driveways and radii varying from 12 to 20 feet on street corners. A steel angle-iron is cast into the upper edge of the curb on all curves, to protect it from damage. Galvanized iron forms are used front and back on the curved sections.

Where the length of curb to be laid is not an even multiple of the 5-foot sections, a space is left near the center of the block, and is carefully measured, and a section is specially cast to fill the space.

Reconstruction on Peniston Street

The work on Peniston Street is reconstruction of a residential street which carries considerable traffic going toward the river from St. Charles Avenue. The foundation is 6 inches of concrete to be surfaced with 2 inches of Uvalde rock asphalt. Peniston Street has a gravel base. As gravel is rather expensive in New Orleans, it is conserved. On this job the Southern Uvalde Contracting Co. removed the gravel with a Koehring ¾-yard power shovel and, in accordance with the contract, hauled it three blocks free where it is used for resurfacing on other streets.

The subgrade was rolled with a 3½-ton Galion roller to secure uniform compaction, and then the 6-inch concrete base, reinforced where necessary with welded fabric, was laid with a 1:2½:5 mix. On streets which are to have vitrified brick or granite block, an 8-inch base is used, because the vitrified brick and granite block are used only on the very heavy traffic roads.

The concrete base has a 1-inch expansion joint in the center and at each end of each block. The gutter sections are poured integral with the foundation, but 2 inches higher, so that the roadway foundation slab is 6 inches thick and the gutter slab 8 inches thick. This difference allows for the 2-inch compacted Uvalde surfacing. A 2 x 2-inch angle is set to grade and acts as a template for pouring both the foundation and the gutter section.

It is customary to install four gutter drains per block, two in the center on either side of the street, and two at the low end of the block. In the case of summit blocks and level blocks, drains are installed at all four corners.

When a piece of construction is going through having new roadway, curb and gutter and sidewalk, driveway entrances are poured at the same time as the roadway and not as a part of the sidewalk. Driveways are poured with the same mix as the roadway and floated with a 1:1 top about ⅛-inch thick.

The concrete is allowed to cure for 14 days before being opened to traffic. Water is sprayed over the roadway for the first five days. When the temperature is below 50, no water cure is required, but specific permission must be secured by the contractor from the city engineer's office.

The local street railway is required by its franchise to maintain the roadway 18 inches to 24 inches outside the outer rail of tracks.

Costs

Costs have run as high as $12 per cubic yard laid 6 inches thick for 1:2½:5 foundation concrete. Present costs are on the square-yard basis and run about $1.70.

The city contracts have a maintenance clause which requires that the contractor take care of all settlement or other failures for a period of five years on asphaltic type surfaces and three years on brick or granite block surfaces. Five per cent of the contract is held as a retainer, but the city pays the contractor 3½ per cent interest on the retainer.

All paving in New Orleans is assessed on a front-foot basis between intersections. All intersections less than 360 square yards are divided in all four directions for half the length of the block. Owners are given ten years to pay, in ten equal installments bearing interest at 4½ per cent.

CONCRETE FOUNDATION WORK ON PENISTON STREET, NEW ORLEANS

1. Foundation course and gutter section showing 2-inch angle iron used as form for gutter and a mid-block storm-water inlet. 2. Spray method of curing the concrete. 3. Section crossing a street railway where tracks will be lowered by the utility to meet the grade of the intersecting street

A Method for Analyzing Your Garbage Collection Service

By DOW W. PERKINS

AMERICAN cities are spending great sums of money to protect the health of their citizens, yet these efforts toward hygienic perfection in most cases never reach the primary cause of trouble—the garbage pail. All too frequently the disposition of the infected mass of putrid material back of every house is left to the tenant, without responsibility for its regular removal, or to a low class of citizenry with antiquated equipment and frequently with little sense of decency or ordinary cleanliness. The common neglect of this breeding place of germ-carrying insects and the unquestionable source of epidemics, is probably due to the general misconception that garbage collection is inherently uncontrollable and sufficiently disagreeable to permanently bar it as employment for a high type of labor and executive supervision. Nothing could be more erroneous.

Garbage collection can, and should be, a high-grade, unobnoxious public service in the interest of public health. It can be performed on this basis at a very small cost per capita, with great economic benefit; for, properly conducted with adequate disposal methods, it has been proved to reduce illness, particularly among charity classes, and prevent the epidemic spread of infection, by rendering less in numbers the bacteria-carrying fly.

A New Concept of the Garbage Problem

The modern American city needs only a new concept of the garbage problem —a concept revealing its vital importance to public health—and a guide to plans and organization, to profit by the benefits of properly conducted garbage-collection services. The problem involves three fundamental considerations:

1—To clean the city thoroughly at sufficiently frequent intervals to prevent excessive fermentation and decomposition in private receptacles, and prevent regular insect breeding.

2—To perform a service which will be as hygienic and as unobnoxious as possible as it is carried on through the streets of the city.

3—To furnish the requisite standard of community service with reasonable economy per capita.

Organization and Analysis

The plan of organization and operation, to function satisfactorily under the above considerations, requires careful analysis of facts weighed by hygienic limitations.

The fixed hygienic limitations to the analysis of facts are the carefully considered answers to two questions:

1—How frequently should collections be made?

2—How long shall a collection unit be permitted to remain on the streets after it starts collections?

Frequency of Collections

The best health and comfort of any community will depend upon a *complete* and frequent disposal of garbage, for garbage is not only the incubator of flies and insects, but the food supply of vermin, when individual accumulations go unsupervised and neglected.

This Method Has Been Used in a Number of Cities

The methods of developing a rational collection system outlined in this paper by Mr. Perkins have been used in several cities as a means of determining the best collection units for garbage when a revision of the system has been necessary. Take the time to apply it to your own service.

The fly seeks its food and breeds in the garbage pail. There its larvae will be found in greatest numbers, to be hatched in from 50 to 60 hours. This, then, must be the maximum time between collections if garbage service is to perform its true function—not the mere gathering of refuse, but the protection of public health. The natural collection arrangement within this time limit is once every 48 hours—every other day.

Time Limit for a Full Vehicle Load

Two elements are involved in this question. A collection unit must be loaded and off the street in time for a complete disposal of garbage within the 50-60 hour limit. There is always considerable delay in ultimate disposal, so that plans for collection must be based on the minimum number of hours in the hatching period of the fly, leaving the marginal time for final disposal. Figuring on a collection every other day, there is left an allowance of two hours to gather each load.

The second element is that loads of garbage must be removed from the streets before obnoxious odors become apparent. Garbage collected every 48 hours will, of course, be in better condition than that picked up by less frequent collections. But garbage 48 hours old reveals advanced fermentation and decomposition. When it is disturbed by dumping into a collection wagon, the fresh oxygen introduced increases the rate of mass fermentation considerably, and odors easily escape. Close observation of the time element after dumping into collection wagons leads to a conclusion that, in addition to the limited time in which to destroy larvae the odors of fermentation and decomposition prevent collection units from remaining on the streets more than three hours after collections start.

This allows up to 9 hours for ultimate disposal by incineration or other process, in which to destroy the greater part of the larvae. The shorter the time, the more larvae destroyed and the more hygienically economical will be the garbage collection service.

With the determination to make a collection every other day and permitting a collection unit to stay on the streets only 3 hours for each load, it is possible to work out routing, equipment requirements, and costs, by the following methods of analysis on actual statistics which are simply gathered and easily arranged for computation and interpretation.

Tonnage Data to Be Gathered

To get at the problem of collections it is necessary to know the total weight of garbage, or garbage and refuse, to be picked up each day. A gross quantity, however, does not make possible proper analysis. It is therefore necessary to have the gross quantity divided into lesser quantities, each available each day from numerous smaller districts of a metropolitan area. These districts might be precincts or distinct districts of a city, such as South Side, East Side, Chinatown, business district, wards, or whatever other small division is most easily available in the particular place being studied.

When these districts are decided upon, the material to be collected must be weighed for each of a series of days during the peak period of the year; a week is generally sufficient. A resulting tabulation would show the total quantity of

garbage collected in each district for a week. Next, the number of miles of street in each district must be determined. This can be obtained easily by scaling maps always found in the office of the city engineer. The tonnage figure must then be divided by the mileage; the quotient representing the amount of material amassed each week, as it will vary per mile of street throughout the city.

Applying the hygienic limitation of "A Collection Every Other Day," the quotients obtained for each district must be divided by 3½—the number of collections per week under the principle, effected by alternation, a week of four collections and one of three. The density in some districts may be so great as to require more frequent collections and in those instances the tonnage-mileage quotient will naturally be divided by the number of collections required.

Classification of Data

The use of these data can best be demonstrated by an example. Assuming the data to have been worked up as described from facts gathered from city wards, we should have the following tabulation:

Ward	Ward mileage	Pounds per week	Pounds per mile of route	Pounds available per mile of route on each collection
First Ward	27	106,355	3,965	1,133
Second Ward	16.5	144,540	8,760	2,503
Third Ward	62	233,560	3,755	1,073
Fourth Ward	32	106,624	3,332	952
Fifth Ward	32	52,416	1,638	468
Sixth Ward	21	27,607	1,267	362
Seventh Ward	14	21,504	1,536	439
Eighth Ward	58.5	235,462	4,025	1,150
Ninth Ward	18	38,736	2,152	615
Tenth Ward	10	22,850	2,285	653

This table shows a great variation in volume of garbage and refuse between different sections of the city, yet it also shows a similarity of volume between what are probably widely separated districts. As a result of the later observation, several wards can be treated as one by grouping those of similar volume together as shown at the top of the page. The data should be further simplified for use as in the table of "Tonnage and Distance Factors."

The total route mileage of each area (Column 1) provides a total weekly quantity (Column 2) which must be moved with collections made every other day; each day the collectors must cover one-half of the mileage (Column 3) and collect approximately one-seventh of the total weekly quantity (Column 4). Column 5 shows the amount of garbage which must be collected along every mile of route in each area. These figures ultimately determine the amount and type of equipment which will best perform the required service.

CLASSIFICATION BY GROUPING

Area			Miles of route	Pounds per mile of route per collection*
I	Second Ward		16.5	2,503
	Average pounds per mile of route in area	2,503		
	Miles of route in area	16.5		
II	Eighth Ward		58.5	1,150
	Third Ward		62	1,073
	Fourth Ward		32	952
	First Ward		27	1,133
	Average pounds per mile of route in area	1,077		
	Miles of route in area	179.5		
III	Sixth Ward		21	363
	Fifth Ward		32	468
	Tenth Ward		10	653
	Ninth Ward		18	615
	Seventh Ward		14	439
	Average pounds per mile of route in area	508		
	Miles of route in area	95		

*From last column of preceding table.

TONNAGE AND DISTANCE FACTORS

Column	1	2	3	4	5
Area	Total route mileage	Pounds per week	Daily route mileage	Pounds to be collected per day	Pounds available per mile of route
I	16.5	144,540	8.25	20,650	2,503
II	179.5	682,031	89.75	96,661	1,077
III	95.	163,113	47.5	24,130	508
Total	291.	989,654	145.5	141,441	.....

Capacity of Collection Units

Maximum economy in any form of transportation results only from hauling the greatest quantity of material at the greatest speed. The efficient mean capacity and speed can be determined only by a careful study of the specific conditions surrounding any particular haulage problem. Most garbage collection services are handicapped in the matter of speed by the fact that rear-door collection is demanded and houses are set far back from the street. This increases the man-power and equipment which must be supplied by the city. Collection speed in garbage collection is always governed by the rate at which a man can walk, as collectors are always on foot. This is, of course, true regardless of the number of collectors employed per collection unit.

Man's walking speed is approximately four miles per hour; however, this general average must be reduced up to 50 per cent for the most densely populated sections and 25 per cent in sparsely populated sections; in the latter it is expected that collectors will climb on the wagon and ride through areas where there are no collections to be made, so that the average speed is increased over that of the most congested district.

The table below presents the load conditions which might be expected in any analysis when figured in conformity with the principle of limiting the time permissible for a load and the average speed previously outlined. The figures are those which determine the mean efficient vehicle capacity.

This table indicates the load available throughout the city within three periods of time, one hour, two hours and three hours. There is no reason for taking a load off the streets in an hour, as no disagreeable odors will have become evident in so short a time. The figures (Column 1) show the estimated collection speed per hour, which has been made to vary with the probable density of population in the sample city. Column 2 shows what a small load is available in as short a period as one hour; Column 3 indicates that the tonnage collectable in two hours is material, but with wide variations between different parts of the city, 5 tons, 2.5 tons and 2 tons respectively; while in three hours (Column 4) the loads have

LOAD AND TIME FACTORS

Column	1	2	3	4	5
Area	Speed in area, m. p. h.	Load available per hr. (tons)	Load available in 2 hrs. (tons)	Load available in 3 hrs. (tons)	Time required to collect 3½-ton load
I	2	2.5	5	7.5	1 hr. 24 min.
II	2.5	1.25	2.5	3.75	2 hrs. 36 min.
III	4	1	2	3	3 hours

increased to 7.5 tons, 3.75 tons and 3 tons respectively. It will be observed that rigid fixation of time limits on loads would destroy standardization of equipment if maximum load efficiency was to be obtained; the problem is to discover the standard unit capacity which will be most efficient for handling these wide variations in tonnage. The mean capacity must be determined by route mileage to be covered per day in relation to total tonnages to be moved, this capacity to be standard for all equipment.

The next problem is to use the data available to determine the proper capacity of equipment for the collection service. Using the preceding table, the reasoning would be as follows:

Areas II and III contain 275 miles of route against 16.5 route miles in Area I. The first two areas supply 845,114 pounds of garbage against 144,540 pounds for the latter (Tonnage and Distance Factors). Therefore the unit which is most efficient in Areas II and III should be the standard capacity. As it has been decided that three hours is the maximum time-limit on a full load, it will be observed that Area III, the most sparsely settled area, supplies 3 tons in this time; it will also be noted that Area II supplies 3.75 tons in three hours. It is obvious, therefore, that a compromise must be made between a slight occasional overload condition on a 3½-ton unit in Area II or a slight excess capacity in both areas on a 4-ton unit. As all figures are based on peak conditions, it is believed that the first option will be best and is therefore to be recommended. Limiting the load in Area II to the capacity of the unit, it will be noticed that a load is completed in two hours and 36 minutes, or in a time not far from the desirable limit of three hours.

The maximum time for a load in over 95 per cent of the territory is considerably over two hours. As the city develops and the population becomes more dense, the loading time will be gradually reduced to two hours per load or slightly less. With normal city growth at least seven to ten years will be necessary to reduce these capacity requirements to the point of being uneconomical. When that time has passed, depreciation will have made replacements necessary. These can be made in capacities which more nearly suit the local development up to that time.

From the foregoing analysis it is clear that a 3½-ton collection unit of any type, automotive or horse-drawn, will be most efficient; on the basis of these figures all schedules or recommendations should be computed on this capacity.

An average yardage per ton should also be determined so that a body of proper cubical volume will be selected.

Collection Equipment Required

The amount of equipment required will vary, with horses and wagons, horses and trailers with tractors, or trucks, because of differences in their relative speed capabilities and the unloading efficiency, but the following table illustrates the method by which the amount of equipment is determined:

COMPUTATION OF EQUIPMENT REQUIREMENTS

Column	1	2
Area	Tonnage to be collected per day	Trips per day required to clean area
I	10	2.9
II	48	13.7
III	12	3.4
Total	70	20.0

Column 1 shows the total tonnage to be moved, and Column 2, the number of trips required in each district with 3½-ton units to move the total tonnage. By graphic analysis the facts in this table should be combined to work out a schedule which shows the necessary equipment needed to meet the schedule.

The graphic analysis is as follows:

On graph paper, draw four longitudinal lines two or more inches apart. Title the first line "City Dump," the second "Area I," and the third "Area II" and the fourth "Area III." At the left-hand end of the last three lines place the number of trips required into each territory per day; a figure available from the above analysis. Divide the longitudinal axis of the graph into hours of the day with subdivisions for ten-minute intervals. Now draw lines representing the movement of vehicles throughout the day between collection areas and the city dump, so that the number of loads to be moved from each district will be handled with a minimum certain the least number of equipment of equipment. The "hunt and try" method will be necessary as all kinds of route arrangements must be tried to ascertain the least number of equipment units.

If trailers are used with tractors, horizontal lines can be drawn representing trailer stations and both trailer and tractor movements indicated from such points.

The three areas can be divided into routes from the above table, as follows:

Area I, 6 routes of equal mileage
Area II, 27 routes of equal mileage
Area III, 7 routes of equal mileage

These are double the routes covered in a day—half one day and half the next.

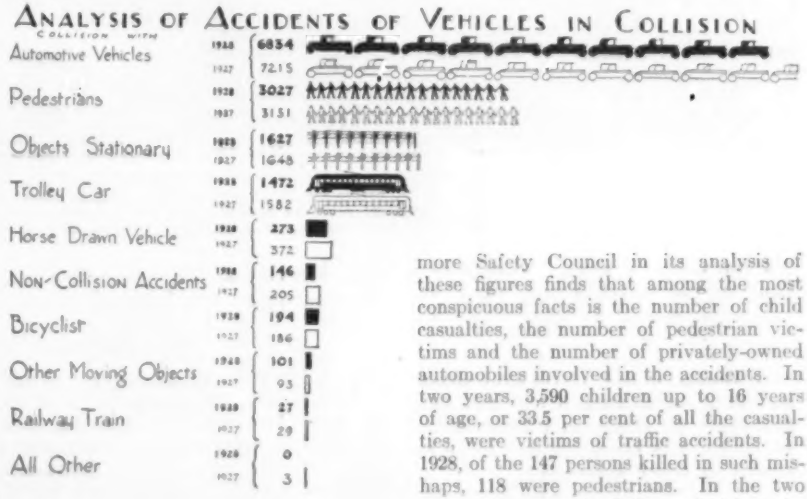
Baltimore Analyzes Its Traffic Accident Statistics

THE accompanying chart from the *Baltimore Municipal Journal* shows at a glance, and in a rather novel manner, the number and nature of traffic accidents in that city during the last two years.

While the statistics for 1928 show that some progress has been made in reducing the number of such accidents and the death toll resulting from them, there remains a great deal to be done. There were 13,701 traffic accidents on the streets of Baltimore in 1928 as compared to 14,484 in 1927, a total for the two years of 28,185.

In 1928, there were 147 persons killed in traffic accidents there as compared to 169 in 1927, a total for the two years of 316. Persons injured in such accidents numbered 5,085 in 1928 and 5,728 in 1927, giving a total of 10,363 for the two-year period.

The Statistical Committee of the Baltimore Safety Council in its analysis of these figures finds that among the most conspicuous facts is the number of child casualties, the number of pedestrian victims and the number of privately-owned automobiles involved in the accidents. In two years, 3,590 children up to 16 years of age, or 33.5 per cent of all the casualties, were victims of traffic accidents. In 1928, of the 147 persons killed in such mishaps, 118 were pedestrians. In the two years, 93 per cent of the pedestrian victims were killed at street-intersection cross-walks. Also, of the 47,106 automobiles involved in accidents during the two years, 40,492 were owned and operated by Baltimore citizens, showing that non-resident drivers were involved in only a minor number of the accidents. Private passenger cars constituted 70.5 per cent of all motor vehicles involved.


ANALYSIS OF ACCIDENTS OF VEHICLES IN COLLISION
COLLISION WITH
Automotive Vehicles 1928 6834 1927 7215
Pedestrians 1928 3027 1927 3151
Objects Stationary 1928 1627 1927 1648
Trolley Car 1928 1472 1927 1582
Horse Drawn Vehicle 1928 273 1927 372
Non-Collision Accidents 1928 146 1927 205
Bicyclist 1928 194 1927 186
Other Moving Objects 1928 101 1927 93
Railway Train 1928 27 1927 29
All Other 1928 0 1927 3

Preventing Accidents on Icy Pavements

By E. A. MILLER

SUPERVISOR OF MAINTENANCE, DEPARTMENT OF PUBLIC WORKS, ROCHESTER, N. Y.

THE increased use of automobiles and motor trucks during the winter months naturally necessitates more attention to the maintenance of slippery intersections and grades against accidents caused from skidding.

The nature of the snowfalls in the winter of 1928-1929 made this situation more of a hazard than in the previous few winters. All of the improved streets in Rochester were plowed after every storm and consequently were bare during the winter months. Then with a light fall of so-called lake snow, the pavement, during the night hours, became a glare of ice.

A Handy Sandy mechanical sander had been purchased and was used very effectively on grades and intersections. Of course, this operation had to be repeated at stated intervals.

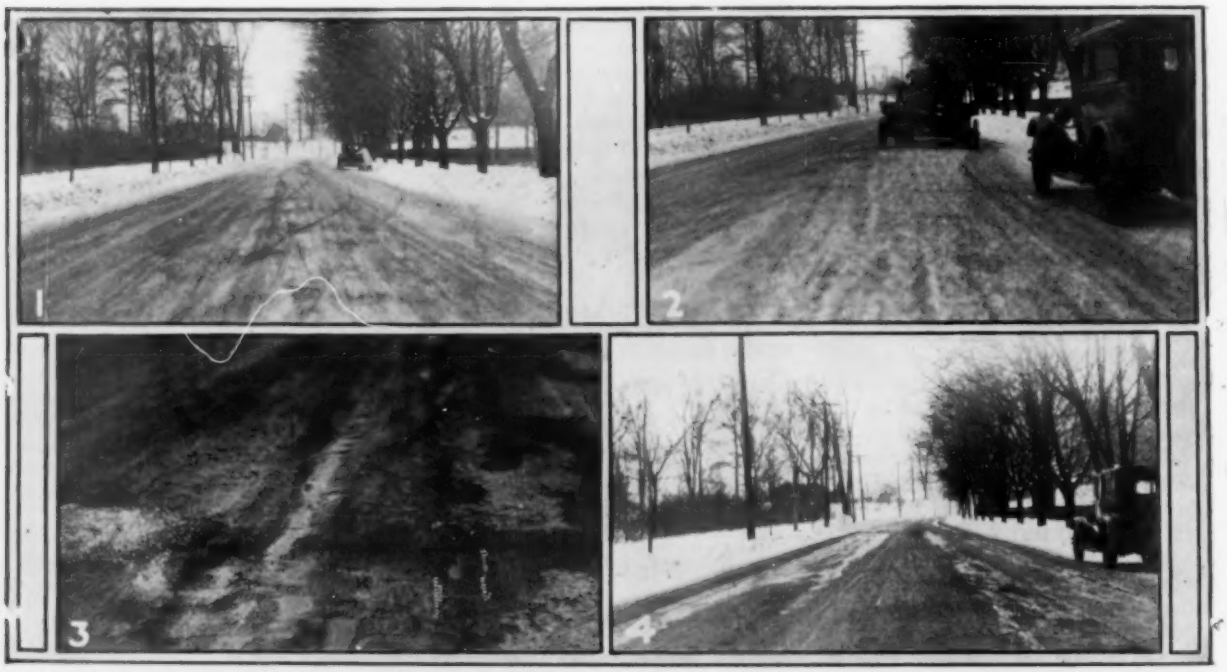
To overcome any difficulties that might come from accidents at points where the traffic is the heaviest, for instance at traffic light stops, we have found that the use of Solvay calcium chloride is very effective.

This material is spread either by hand or mechanically, as shown in the pictures, in quantities of about two pounds to the square yard. It immediately begins to work and in most cases is picked up and carried by traffic at least another block. Consequently, within a very short period of time the motorist is again driving on a smooth but dry pavement.

The attached photographs were taken of an extremely icy grade. The first shows the street before treatment. The next shows the spreading of the calcium chloride on the pavement. The third is a close-up, showing the calcium chloride going into action. The fourth shows the pavement about two hours after treatment had been administered thereto.

We have also found that we can overcome icy conditions on exposed stairways and on sidewalks which require special attention, by the use of calcium chloride. We are also having considerable success in thawing out catch-basins and in opening icy gutters by using a small amount of calcium chloride.

Naturally, the cost of this operation is a factor that must receive first consideration. From data compiled, we are led to believe from the results obtained that the cost is not prohibitive.



PROGRESS PHOTOGRAPHS OF ICE REMOVAL FROM PAVEMENTS IN ROCHESTER, N. Y., BY THE USE OF CALCIUM CHLORIDE
1.—Mt. Hope Avenue, Rochester, at 9:15 A. M. before treatment with calcium chloride, showing covering of ice on the traveled way. 2.—Spreading the calcium chloride by means of a mechanical spreader attached to a motor truck. 3.—A few minutes later—a close-up showing the ice melting rapidly. 4.—Mt. Hope Avenue at 12:10 P. M. the same day, showing the rapid disintegration of the ice

Balmville Is Right

OUT where the car-tracks used to end in a tangle of semi-rural brambles, the Town Airport now occupies the level stretch that was formerly a cow-pasture. The car-tracks were torn up years ago when the bus put the trolley lines out of existence. At one time the local high school thought of building a stadium out there, but nothing ever came of it. Finally, a group of air-minded citizens convinced the Board of Selectmen that if Balmville was to take its rightful place among the cities of the world, it must have an airport. So a couple of town shovelers were sent out there with rakes to smooth the place off; a sign was erected; and now the whizzing tourist is informed that he is passing the Balmville Airport; the Largest Landing Field in Soskedora County.

Well, Balmville is right, pragmatically and ideally right. What though the only craft that has landed there thus far was the clumsy "Jenny" plane of a one-propeller "Air Circus"? What though the town fathers stubbornly refuse to appropriate $200 for pulling up the quack grass and field stone? Deep down in its rustic old heart Balmville is right. Smart paragraphers may laugh as much as they please—but just wait and see what happens ten years from now! —*Century Magazine.*

The Financing and Building of Better Streets in Indianapolis

By A. H. MOORE
CITY CIVIL ENGINEER, INDIANAPOLIS, IND.

THE original construction of streets in the city of Indianapolis is made almost entirely on petition of property owners. This petition follows the procedure prescribed by Indiana laws, for advertising, hearing, and type of pavement used. This gives promoters for different types of material an opportunity to promote their products and causes considerable annoyance, but the property owners generally get the type of pavement they prefer. Not in all cases, however, because we believe that in some instances we are better judges of the type of pavement to be used on that particular street.

Methods of Financing

These original improvements are paid for by property owners, except in rare instances when the city assumes a part of the cost. This refers to original construction only. Where streets are resurfaced, or widened and resurfaced, the cost is paid 75 per cent by the city and 25 per cent by the property owners. Where the streets are widened without resurfacing, the cost is paid entirely by the property owners.

The city of Indianapolis, to meet its share of any expense in the above cases, issues certificates of indebtedness. These certificates, if issued prior to July 1 of any year, are redeemable by taxes of the following year. Those issued after July 1 are redeemable in the same mannner but one year later.

We have other methods of street improving and financing, one of which is the "thoroughfare plan," by which thoroughfares are designated by the City Plan Commission but the actual improvements are under the Department of Public Works. For this work the law permits a tax levy of 5 per cent, but at present we use only 1½ per cent, which is entirely inadequate. Under this thoroughfare plan we may condemn property and improve the street and, in addition to revenue from taxation, the city may, under the law, issue bonds for its part of the cost and assess the balance of the cost over a certain benefited district.

Another method of financing improvements is under the "connecting link law," which contemplates the improvement of city streets that connect with improved highways beyond the city limits, and under this law the county and the city each pay 45 per cent and the property owners about 10 per cent.

Financing Repairs

We may also make repairs under the street repair fund, for which, under the law, we are permitted to fix a maximum rate of 5 per cent, but the present rate is 2 per cent and that also is entirely inadequate. We should have our maximum rate for a period of three or four years to reconstruct and repair certain streets that are in bad physical condition.

The only available fund for street maintenance is the fund derived from the gasoline tax, and in addition to this fund the city uses its own asphalt plant, pays the salaries of the superintendent of street repairs, the superintendent of plant and the different foremen.

Costs of Repairs

In the first part of the year 1927, repair work was let by contract at a contract price of $21.75 per ton. In the latter part of 1927, we purchased the asphalt and put the material in place, with our own labor, at a cost of between $13 and $14 per ton. After our plant was opened and operated, we made these repairs for about $10 or $11 per ton. Of course, the above is for labor and material only and does not include interest on the asphalt plant, or depreciation on that plant, or the salaries outlined above.

In preparing the 1928 specifications, we called into consultation, first of all, the concrete contractors and engineers and officials of the Portland Cement Association and asked them for criticism of our proposed specifications. The Association cooperated and the result has been that we have a set of specifications that is entirely satisfactory to them, and, so far, has been entirely satisfactory to the contractors. The same was done with the asphalt contractors. They and the engineers of the Asphalt Association helped us to secure what we believe to be a set of specifications that is entirely satisfactory to all parties concerned.

Finishing Bases for Asphalt Paving

Our methods of finishing the base of an asphaltic pavement is to use a light roller about 3 feet long and weighing about 100 pounds. The surfaces of the rolls are covered with a ¾-inch wire mesh, and when the concrete base reaches the proper consistency this roller is used. The surface thus roughened offers a bond which will, we hope, prevent sliding and buckling of the asphalt surface. After eighteen months' use it has proved highly successful.

Concrete Paving

On concrete streets, about every 35 feet, we use a dummy or blind joint, which is a strip of wood about ¼-inch thick and extending from subbase up to within about 2 inches of the surface of the road. This creates a weak point in the concrete, and construction cracks form over this joint and they are filled as soon as the conditions permit. In addition to these contraction joints, we place an expansion at every street and alley intersection and midway between every street and alley, making these expansion joints about 105 feet apart.

Our proportions for base for asphaltic pavements are 1:2½:5, and the proportions for our one-course concrete pavement are 1:2:3½. These proportions are not adhered to rigidly, but the matter of the bulking of the sand is taken into consideration and then on each particular job the proportions are adjusted to fit the aggregate and the machine set accordingly. Whenever, after trial, the aggregates are found not to be in proper proportion or not to be uniform, the machine is changed. This takes the contractor about one-half hour to do, and as it always delays the work, he soon begins to insist that the material men furnish him proper aggregate in proper proportions and condition.

We try to get about a 3-inch slump on all of our work. This seems to be satisfactory both for finishing and construction. As a result of this, we have very materially increased the strength of the concrete with practically the same ingredients. In 1925, on an average of between 500 and 600 cylinders, the average compressive strength was 2,562 pounds; in 1926, 2,582 pounds; in 1927, an average of 2,925 pounds and in 1928 an average of 3,351 pounds.

Our core tests were interesting. On about 500 cylinders the contractor at the top of our list made concrete which developed an average of 4,173 pounds with 17 per cent of the core under 7¼ inches in thickness, with an average thickness for the entire number of 8.4 inches, the required thickness being 8 inches. This excess thickness was entirely unnecessary and showed carelessness by that contractor. The contractor at the foot of the list showed an average compressive strength of 3,483 pounds with no cylinders under the required thickness,

but had an average depth of concrete of 8.4 inches. This particular contractor had not been in the business for several years, his equipment was old and out of date, and he did not have the proper organization to bring about efficient work.

On all work, under the later specifications, the contractor is penalized for failure to secure designated thickness or strength.

Our tests on cement walk and concrete curb indicate compressive strength less than that required in the specifications. This was due to the lack of a timing device and proper regulations of the mixture, but conditions on this work were much better the latter part of the year than in the fore part of the season and we believe that in 1929 the construction on that work will be brought up to the proper standard.

In all this work, both in the specifications and the actual construction of the work, the contractor is kept constantly advised, and it has been our endeavor to help him just as far as possible. We believe a spirit of cooperation has been developed which will be highly beneficial to all public improvements in this city.

Ways and Means for Testing Large Meters

By R. E. FERGUSON

ASSISTANT SUPERINTENDENT, HERSEY MANUFACTURING CO.

THERE are four generally accepted methods for testing meters. These may be divided into two classes—those in which the meter must be removed from the line, and methods by which the meter is tested in the field. The first classification includes discharging the water through the meter into a tank which rests on scales, and discharging the water through the meter into a tank which has been previously calibrated by cubic feet or gallons. A third method is by the use of the Freeman nozzle, which will be described in this text, and a fourth method by testing the meter in the field with a previously calibrated meter. This will also be described in detail.

Testing with the Freeman Nozzle

Testing meters by the use of the Freeman nozzle is mostly confined to laboratories of insurance companies, pump manufacturing companies, and universities. If there is an unlimited flow of water, the nozzle test has many advantages over the tank and scale tests. For example, the range of flow is easily controlled, the duration of the test is not confined to a few hundred cubic feet, and if the tests are conducted in a careful manner, they are very accurate.

A test of an 8-inch meter in a nozzle-testing machine located in the Water Department, Lowell, Mass., is shown in Figure 1. As this is a 6-inch machine and it was desired to test an 8-inch meter, a 6 x 8-inch adapter was used on the inlet end of the supply with about 12 feet of 8-inch straight pipe. On the outlet end of the meter an 8 x 6-inch adapter was used with the control valves and about 8 feet of straight 6-inch pipe with the pizometer and nozzle on the end.

The straight piece of pipe ahead of the pizometer was sufficient to straighten out all the eddies and currents induced by the change in pipe sizes. The pressure in the pizometer was regulated by three valves, 6 inches, 2 inches and 1 inch. In running a test, the larger valve was opened until the pressure was within about ½-pound of the desired pressure. Then the small valve was used for finer adjustment. With the small valve, it was also possible to control any slight fluctuation of the pressure. During the test the pressure was checked in two ways: first, a spring gage which was attached to the pizometer; and, second, by the mercury column which was also attached to the pizometer through the same connections as the spring gage. The spring gage was graduated to 0.1-pound, and the mercury column to 0.2-pound. During the test, 1-inch, 2-inch and 4-inch nozzles were used. The rate varied from 75 gallons per minute to 2,880 gallons per minute. The pressure at the nozzle used was from a minimum of 6 pounds to a maximum of 29 pounds. The pressure on the inlet side of the supply line was 70 pounds.

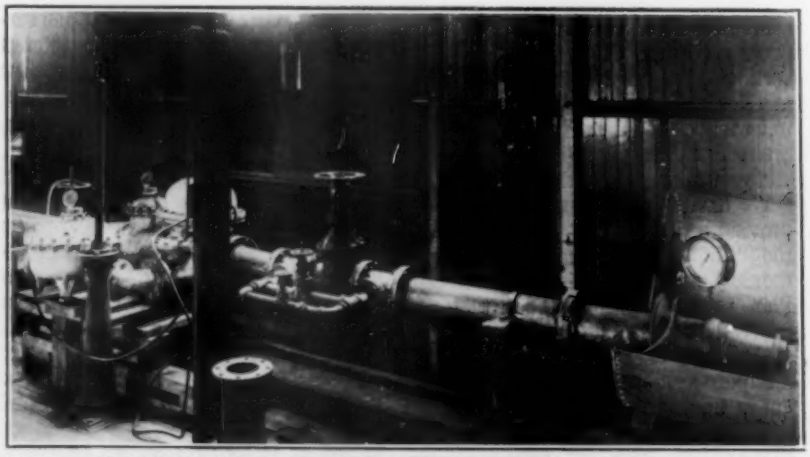


FIG. 1.—INSTALLATION OF AN 8-INCH METER FOR TESTING BY USE OF A FREEMAN NOZZLE

A close-up of the meter and the mercury column to check the loss of pressure across the meter and the method of attaching the mercury column to the meter are shown in Figure 2, which also gives a better view of the flow-regulating valves. An air release valve was installed on the inlet end of the supply pipe. The water was supplied through 40 feet of 6-inch pipe to the test machine from a 24-inch main. The water was discharged into the pump well, so that there was no waste of water.

Field Tests

A 4-inch meter with a 4-inch by-pass and the proper valves installed so that a meter repair man can test and repair the meter without interference with the consumer's water-supply, are shown in Figure 3.

By-pass flow is controlled with a gate valve which is locked with a chain and padlock, the only key to which is held by the Water Department, and in some cases seals are attached. In Figure 3, the test meter is shown attached directly to the meter with a 2½-inch hose. In some cases a test T is installed in the line between the outlet end of the meter and the gate valve. The installation shown has a 2-inch gate valve attached to the meter below the hose connection. The advantage of this valve is that the valve on the inlet side of the meter does not have to be shut down to make test connections. When it is necessary to shut down the valve to make a connection for a test, the incrustations from

FIG. 2.—TESTING AN 8-INCH METER FOR LOSS OF PRESSURE

the side of the valve may be broken and lodge in the meter, either stopping it or seriously retarding it. This necessitates opening the meter and cleaning it out before a test is made, which, in the case of a disputed bill, would make the test almost worthless.

A 3-inch velocity meter is used for making tests for large flows, and a ¾-inch disc meter is used for small flows. These two meters are connected to the meter to be tested with a 2½-inch high-pressure hose, the flows through the 3-inch meter being controlled by a 3-inch quick-closing valve, and the flows through the small meter being controlled by a ¾-inch angle valve on the side of the 3-inch meter to which the ¾-inch meter is attached. When using the small meter the 3-inch gate is closed, and when using the large meter the small valve is closed. The 3-inch quick-closing valve enables the tester to close the meter more accurately than by a screw stem valve. The rate of flow is controlled by only partially opening the valve, and with very little experience a tester can gage his flows very close to the desired rate. The flows should be checked with a stop watch. In some cities different-sized orifices are used to control the rate of flow, but as the pressure varies with different localities, so will the rate of flow vary.

In some cities where the large meters are tested once a year, an "up and down" test is run. The controlling valve is opened and closed slowly during the test so that the flow will vary from the minimum to the maximum rate of the test meter. This also invariably covers not only the average rate of consumption, but the small night flow and the peak load as well.

In testing large meters with the apparatus shown in Figure 3 and with from 15 to 20 feet of hose under 50 pounds pressure, it is possible to test flows as large as 450 to 500 gallons per minute, which in all ordinary cases is sufficient. For the low flows for which the ¾-inch or 1-inch meter is used, it is possible to gage the minimum rate at which the meter to be tested is guaranteed.

The use of a velocity meter for testing is considered better because the loss of pressure is very low at high rates and the velocity meter will pass sand and small particles of dirt without interfering with the registration. There is also a strainer at the bottom of the measuring chamber which will stop foreign matter that is large enough to retard registration. It is not to be inferred that most water departments have more or less sand in the water, but in running these tests, especially on flows larger than the average consumption, if there is any accumulation of sand or dirt in the pipes, it will be drawn through the test meter. This, of course, does not apply to smaller rates of flow through the ¾-inch disc meter.

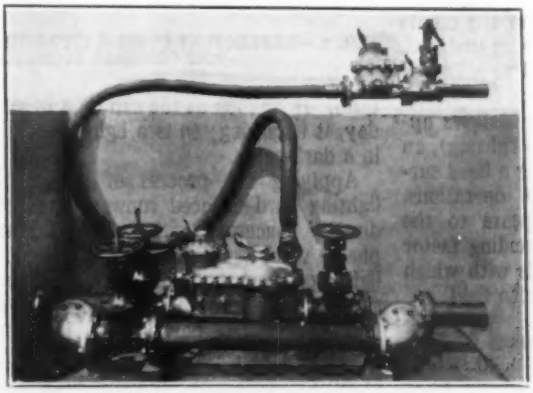


FIG. 3.—TESTING A 4-INCH COMPOUND METER IN THE FIELD

In testing a compound meter, it is best to test the smaller flows first, so that if there is any error in the meter it can be segregated. If, on testing the by-pass meter, it is found to be in error, this error should be corrected before running flows that are registered on both the main line and by-pass meters.

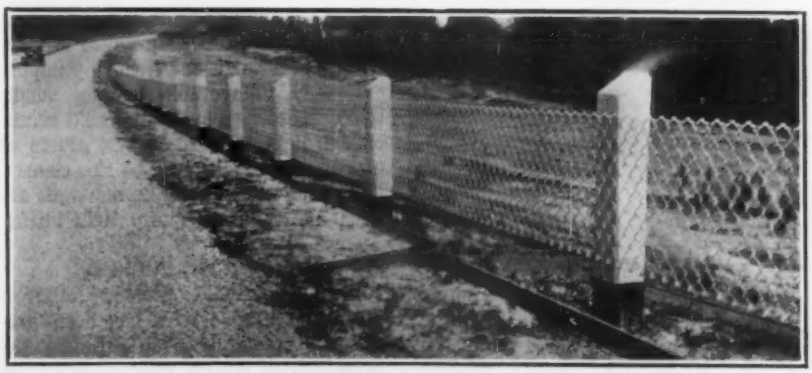
We have no specified rates of flow at which to test meters in the field, as we permit the superintendent to designate the test rate he wishes used, because in most cases the superintendent has a very good idea of the average rate of consumption.

Effect of Setting on Testing

Some meters are set in pits so small that the top of the pit has to be removed before it is possible to hook up the test apparatus. I have seen one meter set with a 3-inch gas pipe crossing over the top at right angles and clearing the meter by not over 6 inches. In many cases meters are set in pits so narrow that a man cannot remove the meter bolts except with a socket wrench or a hammer and chisel. This, of course, is unavoidable in many cases, owing to other underground conditions, but if the man in charge of building meter pits keeps in mind the fact that the meter may eventually require repair and that in all probability the work will be done in the pit, there is no doubt that the pit will be built larger. If the meter cannot be set without the cover being close to the top, the pit should be dug 18 to 24 inches below the bottom of meter and, if possible, have a drain. This will not only help the repair man, but also assist in keeping the registers cleaner.

ACKNOWLEDGMENT.—From a paper read before the New England Water Works Association at Portland, Maine.

Safeguarding Florida Highways Against Washing



GUTTER BOARD AND DRAIN USED TO PROTECT SHOULDERS ON FILL

Relation of Paving Materials and Surface Finishes to the Lighting of Airport Runways

By D. C. YOUNG

AVIATION LIGHTING SPECIALIST, NATIONAL LAMP WORKS OF GENERAL ELECTRIC CO., CLEVELAND, OHIO

NEW ideas are being tried to make airport sites usable the year round—to eliminate the boggy condition following spring thaws and heavy rains, and to reduce the dust nuisance in dry weather. Hard- or semi-hard-surfaced runway strips appear to be the answer to this problem. While hard surfaces very satisfactorily take care of such conditions as mentioned above, great care should be taken in selecting the type of surface and finish so as to not create new conditions more serious than those eliminated. Much has been said on the subject of the effect of hard surfaces on the landing characteristics of planes, also on the merits of the various types of paving material. This article is not intended to affirm or deny any of these comments, but rather to show how various such surfaces appear when lighted (react to lighting), an important factor in selecting a hard surface finish for safe night operations. This consideration, it appears to the writer, may well be the deciding factor in finally selecting materials with which to surface a part or all of the field.

The Process of Seeing

We see as a result of light which travels first from the source to the object looked at and thence to the eye. If the object is of good light-reflecting qualities or of high reflection factor, it will appear brighter than one of low reflection factor. The actual brightness is in every case determined by the amount of light reflected to the eye. If the brightness is uncomfortable to the sense of sight, we say it is glaring. Glare is a relative term. If we look at the sun on a bright day, it is glaring; so is a lighted match in a dark room.

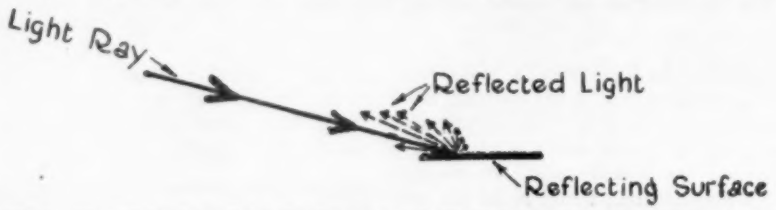


FIG. 1.—REFLECTION FROM A HYPOTHETICAL SURFACE THAT RETURNS LIGHT IN THE GENERAL DIRECTION FROM WHICH IT COMES

Applying the process of seeing to lighting hard-surfaced runways, we are directly concerned with two particular phases of the subject. First, a type of lighting system that will not cause bright surface reflections to fall in the pilot's line of vision, particularly in wet weather, and second, color and finish of hard surface that will make for quick and easy seeing without excessive loss of light.

Fortunately, the recommended practice of locating the lighting units about an airport very largely avoids the danger of glare, both from the lighting units and the surface reflections, in that the lighting units are so arranged that the pilot lands *with* the light beam at all times—that is, for a particular wind the lighting units are selected which enable the pilot to land into the wind when landing with the light beams. However, if the lighting system is such that the wind often forces the pilot to land toward one of the lighting units and it happens to be on a rainy night, a paved or hard surface of a particular type may impose extremely unfavorable landing conditions. The wet pavement would reflect enough light from the bright source to be dangerously glaring. In this connection some types of paving materials are much more unsatisfactory than others.

Reflection and Diffusion

We will assume, therefore, that a flexible lighting system has been provided. The problem of selecting the type of hard surface material is mainly one of determining which is the most favorable from a light-reflecting and diffusing standpoint—that is, the one which will reflect enough light to the pilot's eyes to enable him to see clearly. The ideal surface would be one which returns an appreciable quantity of reflected light in the general direction of the incident beam, and would greatly reduce the amount of electrical energy required for lighting, Fig. 1. However, no such paving surface as this is available commercially at the present time.

The next best light-reflecting property for a landing surface to have would be similar to that of ordinary blotting paper, which diffuses the incident light rays and sends in about equal quantities in all directions, Fig. 2. A close inspection of this type of surface will show that it is rough enough to completely break up the light rays, although it appears quite smooth to the eye. Its

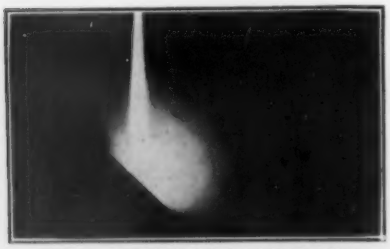


FIG. 2.—EFFECT OF A ROUGH MAT SURFACE

This reflects light in all directions, and therefore appears equally bright at all viewing angles

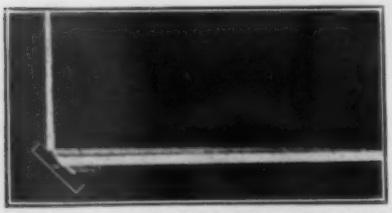


FIG. 3.—A SMOOTH, POLISHED SURFACE SUCH AS A MIRROR IS VERY DIRECTIONAL IN LIGHT REFLECTION PROPERTIES

Totally unsuitable for use on an airport; it would appear dark when viewed at any angle except in the reflected beam, and here would be excessively glaring

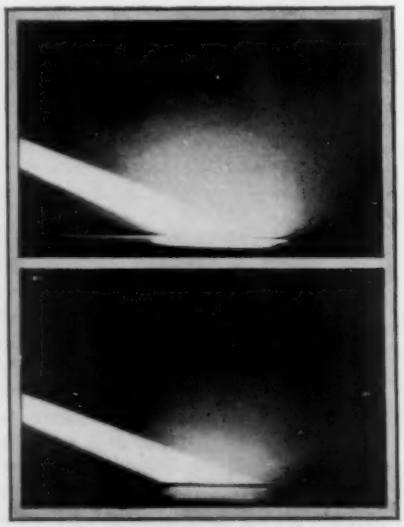


FIG. 4.—CONCRETE SURFACE, STEEL FLOAT FINISH

When dry (above), this diffuses the light beam, causing the surface to appear equally bright at nearly all viewing angles; when wet (lower view), slightly directional reflection characteristics apply

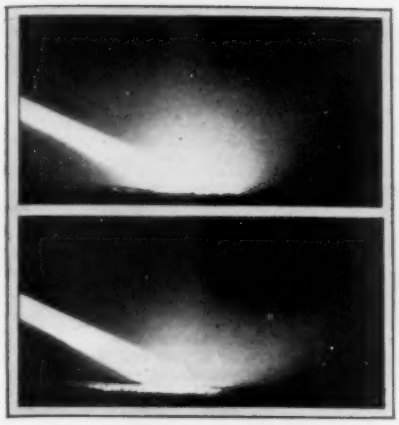


FIG. 5. — CONCRETE SURFACE, WOOD FLOAT FINISH

When dry (above), diffuses the incident light beam to about the same degree as the steel float finish; when wet (lower view), the reflected beam is broader and therefore less likely to prove glaring under a strong beam of light

brightness when dry appears about the same from any viewing angle. As will be shown later, light-colored concrete provides essentially this type of reflected light distribution.

The most unfavorable surface, from a lighting standpoint, is the one which absorbs practically all of the light which falls upon it, or one which acts as a mirror and reflects most of the light in a narrow angle, Fig. 3. Obviously, such a light is decidedly unsuitable for use as a landing area at an airport. Black, oily materials have such general characteristics.

Effects of Various Materials

Let us now consider the various materials with which to construct hard-surfaced runways. For the most part, they are the same as those used for road and highway construction. However, when selecting samples according to certain light-reflecting and -absorbing characteristics, the list can be reduced considerably.

Three types of hard surfaces were considered in preparing this article—concrete, tar base, and brick. Of the concrete type three degrees of finish were obtained—smooth, medium, and rough. The photographs show how each surface when dry and wet reflects and diffuses the light, and from them very definite conclusions can be drawn as to their fitness for airport runways.

For the concrete samples, there is very little difference in the light-diffusing and reflection characteristics when they are dry. Each finish diffuses the light very completely. It can be said for the rough, dry surfaces that more light is returned in the direction of the incident beam than is sent in any other direction, also that little or no light is reflected at a low angle. When wet, a decided beam is reflected by the smooth and medium finish, which may prove slightly glaring. The rough finish when wet does not reflect the light into a beam because of the vertical surfaces presented to the incident ray. If the surface became more completely covered with water, then it would doubtless reflect light similar to the other finishes. From a lighting standpoint the advantage of back-reflection which applies for rough finish may be more than offset by its extreme roughness for all practical purposes, a consideration which probably does not apply for the smooth finish.

Fig. 7 shows the light diffusion and reflection characteristic of the sample of tar base paving, containing an appreciable quantity of crushed rock. When dry, this sample shows a low order of diffusion with a tendency toward directional reflection. When wet or moist, the sample reflects the light into a very definite beam which would doubtless prove glaring with ordinary types of airport-lighting equipments.

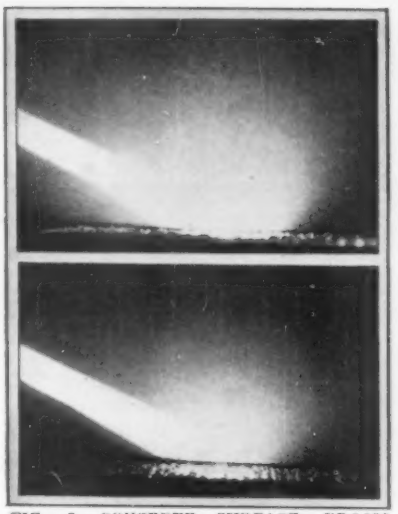


FIG. 6.—CONCRETE SURFACE, BROOM FINISH (VERY ROUGH)

When dry this has a tendency to return some of the light in the direction from which it comes. In this respect it approaches the ideal condition set forth in Fig. 1. Very little light is reflected at a low angle, resulting in low brightness for this viewing position. See Fig. 9. When wet, the rough finish shows no tendency toward directional reflection. If, however, the surface became completely submerged, this tendency would largely disappear

Similarly, Fig. 8 shows the sample of paving brick under a beam of light. A panchromatic film was used to obtain this photograph in order to record the reflected red light. While for this reason the photograph is not directly comparable with the others, it does show how

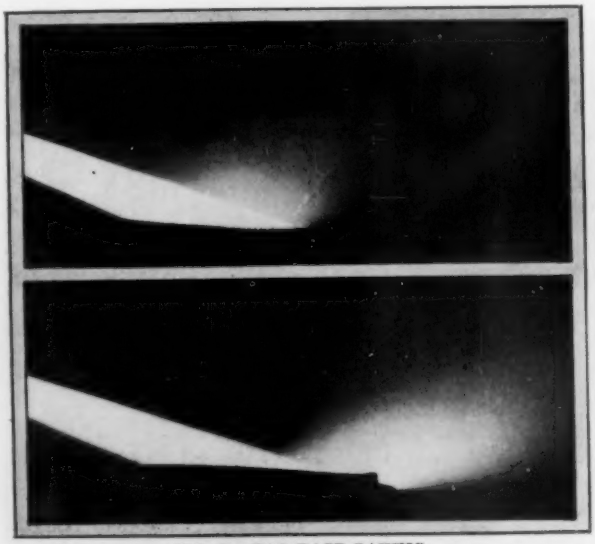


FIG. 7.—TAR BASE PAVING

Appreciably directional in reflection characteristics when dry (above), and extremely so when wet (below). Only a slight tendency toward diffusion is noted for the dry condition. At certain viewing angles the surface would appear quite dark, and glaring at other angles, as in the reflected beam

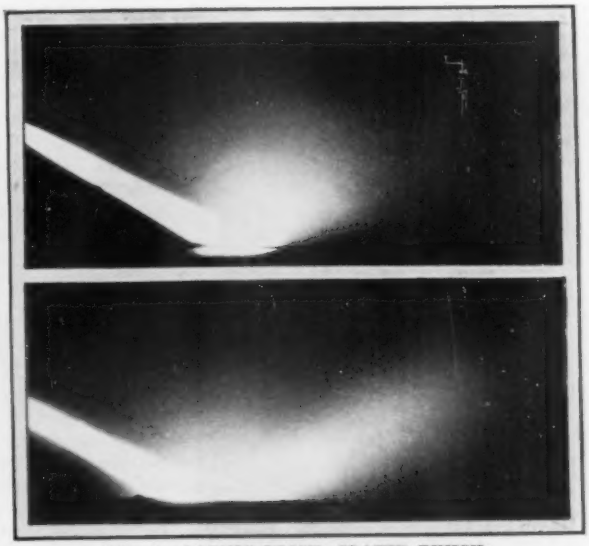


FIG. 8.—PAVING BRICK, GLAZED FINISH

This diffuses fairly well when dry (above); when wet (below), there is a strong directional tendency. Because of the reddish color of the reflected light a panchromatic film was used, which shows a greater splash of diffused light which cannot be compared directly with that shown by the other photographs

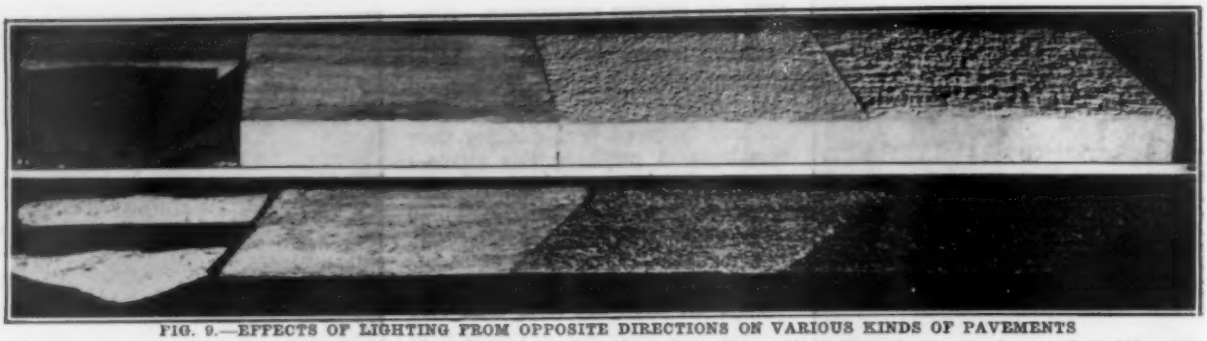


FIG. 9.—EFFECTS OF LIGHTING FROM OPPOSITE DIRECTIONS ON VARIOUS KINDS OF PAVEMENTS

(Above) All surfaces photographed looking with the light beam at about the angle a pilot would see them when coming in over the lighting unit for a landing. The tar base and brick samples at the left appear rather dark; the dark spots on the rough concrete finish, right, are shadows cast by the projecting vertical surfaces. (Below) Looking toward the lighting unit, the brick and tar surfaces appear bright (glaring) as compared with the smooth or medium concrete finishes. The rough concrete finish appears dark because of the protruding vertical surfaces. See caption for Fig. 6

the surface acts in reflecting and diffusing the light rays which fall upon it. When dry, the brick is slightly directional in reflecting properties, and a better diffuser than one would think. When wet, the diffusion characteristic is still very pronounced, but a strong beam of light is reflected which would doubtless prove very glaring under normal present-day airport-lighting conditions.

From the photographs of assembled samples in line, all under identical lighting, one can more readily apply the above study in deciding which type of finish is most practical for use as an airport surfacing material. Here, all surfaces are dry. The top photograph was taken looking with the light beam, as a pilot would see a given surface when coming in over the lighting unit for a landing. The lower photograph was obtained looking toward the lighting unit. On this one the tar base and brick samples appear bright because of their directional reflection characteristics. The rough-finished concrete sample appears quite dark because of the many vertical surfaces which block and reflect the light in other directions.

From these photographs it appears that from the lighting standpoint a smooth and possibly medium finished concrete surface is most suitable for airport runways. Such a surface will always be revealed more clearly under artificial illumination, and therefore contribute the most toward safe night operations.

Bank Redesigned in Spirit of Proposed Zoning Ordinance

THE new Royal Bank of Canada Building in Vancouver, B. C., will be a monument to a commendable spirit of cooperation which recently led the Bank to alter the completed plans for its new office building because they conflicted with a proposed zoning by-law designed to conform with the newly completed city plan prepared by Harland Bartholomew and Associates, town planning consultants, of St. Louis, Mo. Here is the story in brief, as told to THE AMERICAN CITY by J. Alexander Walker, Secretary of the Town Planning Commission of Vancouver:

The Royal Bank of Canada had been contemplating for some time the construction of a large office building on its property on the corner of the two main business streets, and had had its architects preparing plans for several months. About the middle of December, 1928, the plans were completed and S. G. Davenport, the Bank's consulting architect, arrived in the city from the head office in Montreal, to place them before the City Council in applying for a building permit.

The City Architect pointed out that the plans, while conforming to the existing building code, would not be in accordance with the proposed zoning by-law in respect to height and to the set-back of the upper stories. The Bank was acting in good faith and, as the zoning by-law had not yet been passed owing to unforeseen and unavoidable delays in its preparation and presentation to the City Council, there was no recourse but to grant the permit.

It so happened that the next day the Planning Commission was holding its regular meeting. Attention was drawn to the press reports concerning the Bank's building and regret was expressed that the zoning by-law was not in operation. It was generally felt that nothing could be done, but it was decided to interview the local officials and their architect to see if some moral suasion could not be invoked. As a result, the Bank's architect consented to prepare new plans, and returned to the head office to do so, although realizing to the fullest extent the additional work involved. Shortly afterwards the zoning by-law was passed by the City Council and it immediately came into force. About three months later, Mr. Davenport again came to Vancouver and had his revised plans for the Bank's building approved by the Council. True it is that compromise was made; the new plans do not entirely conform to the zoning by-law, but the results obtained were well worth the endeavor.

ORIGINAL SKETCH OF VANCOUVER BRANCH, ROYAL BANK OF CANADA

THIS REVISED DESIGN PLEASES COMMISSION, BANK, AND ARCHITECT

Abolishing Street Traffic Intersections Without Grade Separation*

A Study of Highway Planning and Traffic Control to Meet the Needs of the Motor Age

By FRITZ MALCHER

IV. Parking

THE parking of vehicles parallel to the roadway is uneconomical because a space of about one-half the length of a vehicle must be left between the cars, so as to make it possible for each vehicle to slip in or out of the file at any time. Thus one-third of the available parking space is being wasted. Longitudinal parking, parallel to the roadway, will be found suitable only on parking places for taxis and motor-busses, and where vehicles parked in tightly packed files await their turn to proceed and no vehicle will have to leave its place in the file. Such would be the case at parades, receptions and so forth.

Parking at an angle of 90° is not practicable on heavy traffic arteries, because each vehicle leaving or getting into its parking place would obstruct traffic on two or three lanes, depending on the size of the vehicle. Therefore, parking at an angle of 90° should be applied only on special parking places outside the roadways.

Oblique parking, as a rule at an angle of 45°, was introduced years ago in practically all cities where traffic is heavy, and can be considered as the best of the possible solutions. Americans generally park forward, whereas in almost all other countries vehicles are being parked rearward. Henry Wright, whose attention I had drawn to the fact, mentioned this interesting detail in the June issue of this magazine, page 108. It would be worth while to investigate how far this difference in the parking methods has been influenced by the different mentalities of the various nations.

The advantage of forward parking lies, without any doubt, in the rapidity with which vehicles can be taken out of the flow of traffic. Rearward parking, on the other hand, gives us the advantage of having the doors of the car closer to the sidewalk; besides, by parking passenger cars and trucks in the same direction we shall attain better order and uniformity of traffic. Further, traffic will be interrupted on one lane only, and as this lane is used for slow traffic, the interruption will not be felt heavily. The advantages of both kinds of parking at an angle can be combined in the following way: forward parking for rapid, rearward parking for slow traffic. We must bear in mind, of course, that through as well as local traffic can be either slow or rapid. *Ills. 16, 21* and *22* demonstrate the practicability of rearward parking, which will be found useful in many cases.

Technically, it might be considered a drawback that motorists having parked their cars on parking spaces installed on middle strips are compelled to cross on foot perhaps as many as four lanes of traffic. This would be a sound argument, without any doubt, but, on the other hand, why should motorists who find it necessary to park their vehicles be better off than pedestrians who have to cross not one but two roadways when walking across the street? The motorists can walk on the sidewalk of the middle strip as far as the next crosswalk, where they will find it easier to cross the roadway. (See paragraph referring to *Ill. 21.*)

V. Street Crossing Without Intersection of Traffic on One-Way Streets

THE LENGTH OF THE SO-CALLED OBLIQUE CROSSING LINE

A one-way roadway carries two or more lanes. In order to eliminate the usual intersections of traffic, my system provides that a vehicle proceeding across the roadway shall have to cross the lanes on an oblique line. The length of this oblique crossing line depends on the number of lanes and the density of traffic. Expressed mathematically: the number of lanes, multiplied by the width of the roadway, will give us the minimum distance between the center points of the in- and off-side curves. For instance: on roadways 20 feet, 30 feet, and 39 feet wide the distance between the center points shall be 40 feet, 90 feet and 156 feet respectively, corresponding to the higher speed of traffic on roadways of greater width (*Ill. 24*). A further increase in the distance between the center points, especially on roadways with only two lanes, is to be recommended from the point of view of traffic.

THE NUMBER OF LANES FOR MOVING TRAFFIC

It should be considered as a strict rule that within the length of the oblique crossing line, connecting the points of turns-in and -off, the number of lanes for moving traffic should never be less than the sum of all lanes, joining within that stretch of roadway. Likewise, a roadway should have at no point of its entire length a greater number of lanes for moving traffic than can be taken care of properly and without congestion of traffic.

On existing streets, too, this rule can be put in effect by adequate distribution of "stop lanes,"† which will reduce the number of moving traffic lanes to a figure that can be handled satisfactorily within the limits of the oblique crossing line. *Ill. 25* shows stop lanes (hatched spaces) protected by properly constructed lines of curbstones. (See also *Ill. 17.*) Naturally, so constructed lines are possible only on roadways with three lanes or more, as two lanes at least must be always available for the moving traffic. On two-lane roadways the stop lane should be marked simply by a colored line. Crossways for pedestrians (dotted line) are provided at the protruding points of the sidewalks.

SCHEMATIC SYSTEM OF ONE-WAY STREETS

These two principles, applied to a system of one-way streets, result in a very characteristic picture as explained by the schematic sketch of a system of streets running at right angles (*Ill.* 26). Through arteries with regularly alternating directions of traffic are suitable for the main traffic; short side streets, where traffic will have to proceed on a sinuous line because of the alternating direction of traffic, are suitable for secondary traffic. The resulting blocks show two different lengths, in the proportion of one to four, approximately, alternating in both directions of traffic. This plan eliminates all intersections, and both main traffic and secondary traffic arteries are well separated and put to full use. Besides, those short side streets will improve the city plan from the architectural point of view.

In cities with a rectangular street system it has often been found necessary to designate streets, particularly cross or secondary arteries, as one-way streets; this rule does not generally apply to main arteries. Most American cities belong to this rectangular type (*Ill. 27*). In any case, however, attempts

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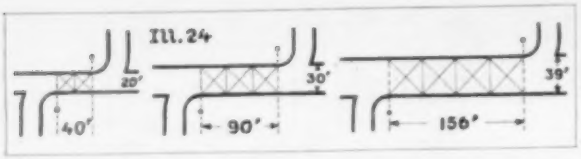
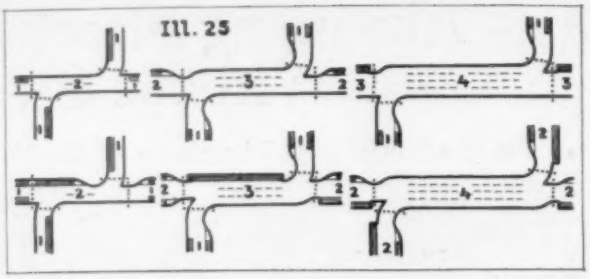
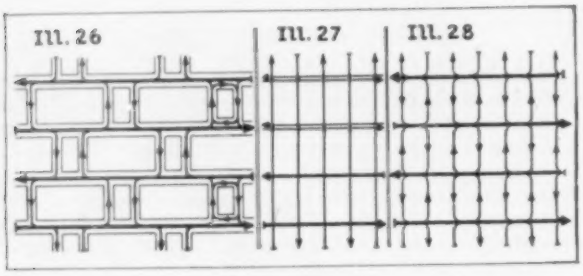
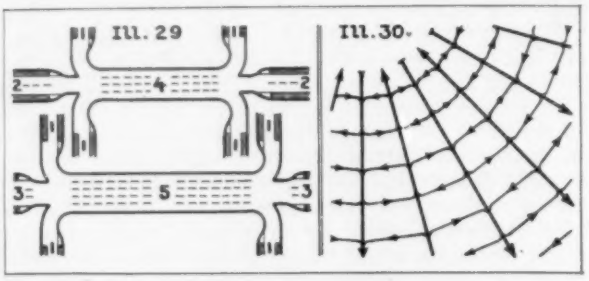
* EDITORIAL NOTE.—The first part of this article, comprising Sections I, II and III, and illustrations 1 to 23, appeared in the September issue of this magazine. Reprints are obtainable from the author at 56 West 45th Street (16th floor), New York.

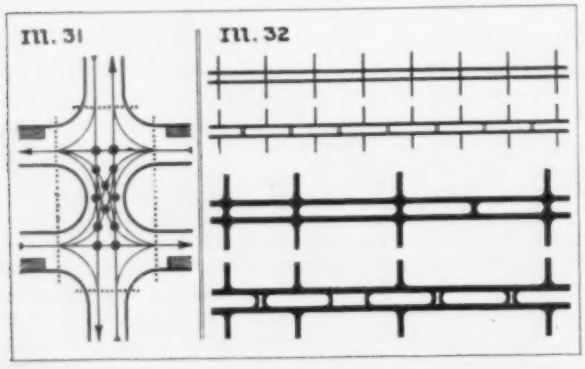
† The author uses the term "stop lanes" to mean a traffic lane in which cars are allowed to stop temporarily for loading or unloading.

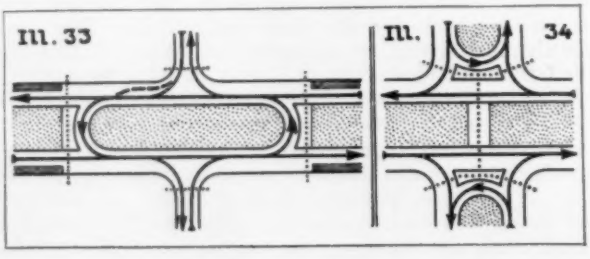


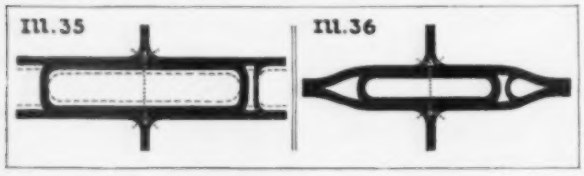


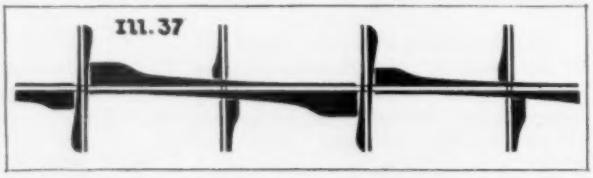












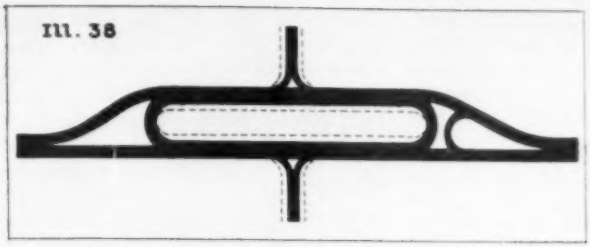
to regulate heavy traffic by the present method mean obstruction of traffic moving in one direction and consequently the continuous stopping of one-half of the entire volume of traffic even when preference is given to the main traffic.

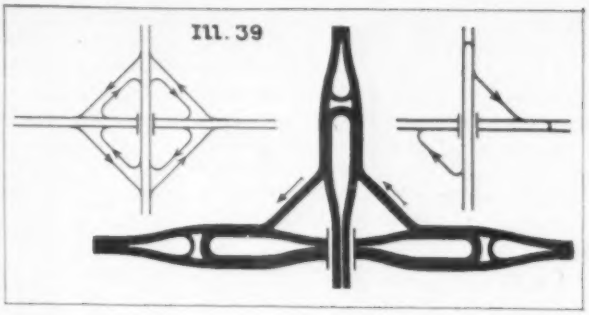
Application of my system will give us through arteries for the main traffic, the directions of traffic alternating regularly; on through side streets the directions alternate along as well as on each side of the main arteries, which gives us again a sinuous line for the secondary traffic of all side streets (*Ill. 28*). The sum of all the moving traffic lanes joining the main artery within the limits of the oblique crossing line necessitates the appropriate widening of the roadway within those limits; in many cases the standard number of four lanes will have to be increased. Of all possible variations, this specific sinuous line is generally the most suitable (*Ill. 29*). This applies also to cases explained in *Ill. 25*. Want of space does not permit me to give more than a few examples. Should this widening, for some reason or other, be impracticable, the drawback will be felt only by the secondary traffic subordinated to the main traffic. Vehicles turning in from side streets will have to wait for a gap which will permit them to slip into the main traffic stream. This means a loss of time which will compel a driver whose goal lies farther away crosstown to take one of the main arteries and to proceed over the two-way street encircling the street system, hereby saving time. Thus the density of cross traffic will be reduced to a large extent. The principles of my traffic plan, applied to a system of one-way streets, no matter whether preference is given to the main traffic or not, result in the elimination of traffic intersections, of traffic lights and traffic officers. Control of traffic for the protection of pedestrians will be sufficient. All vehicles will be able to proceed freely and without any obstruction through all the main arteries and, where secondary traffic is not subordinated, also through all the secondary streets.

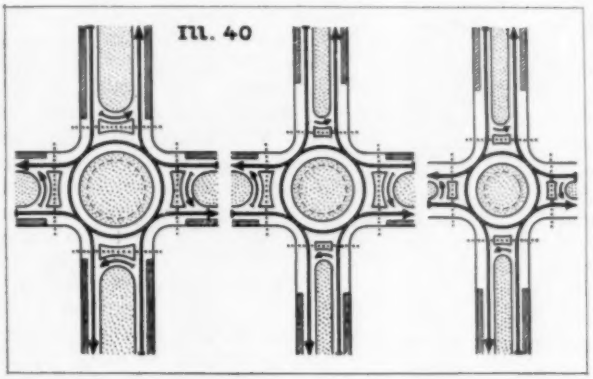
Naturally, such a street system can show various and quite different designs. The explained fundamentals can be applied to any street system, also to such of radial structure (*Ill. 30*).

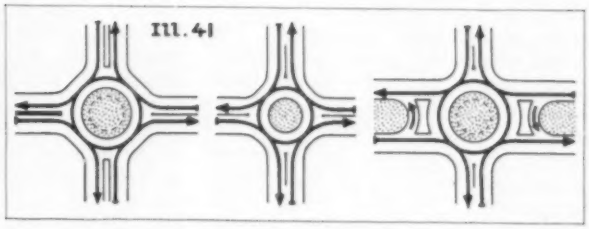
VI. Street Crossing Without Intersection of Traffic on Two-Way Streets with Different Density of Traffic

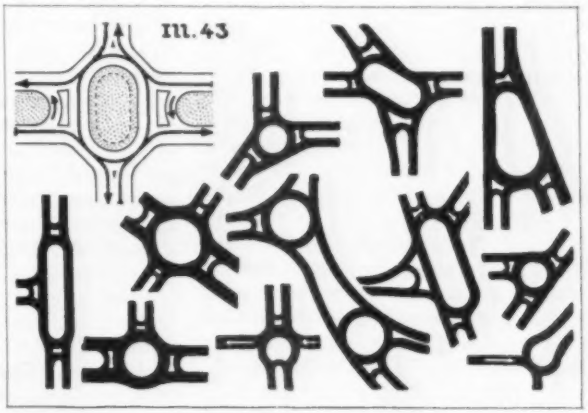
Middle strips between the roadways of two-way streets are nothing new. Hundreds of miles of streets have already been constructed with middle strips. Their value as a boundary separating two roadways is being appreciated, but, on the other hand, their great importance for the cross traffic is not at all being realized. Middle strips are still being constructed in such a way as to permit traffic intersections at cross roads, although the dangers of such crossings are, unfortunately, all too evident. *Ill. 31* shows the intersection of a four-lane two-way street—two lanes on each side of the middle strip—and a two-way street with two non-separated lanes. The lines of moving traffic on

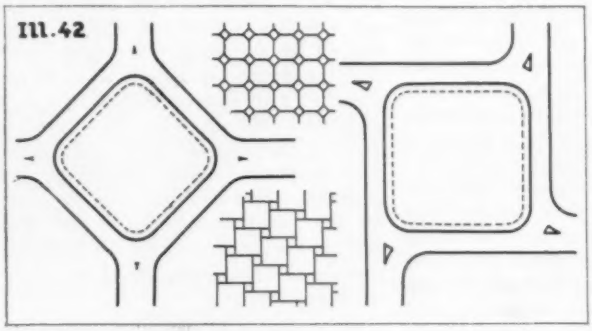












such a quite usual and simple crossing show us twelve distinct intersections of traffic at an angle of 90° or more, that is, twelve danger points! An increase of the number of moving traffic lanes would result, evidently, in a still greater number of danger points. (Crossways for pedestrians are shown as dotted lines.) Besides generally insufficient widths, such faulty constructions are the principal reason why middle strips cannot fulfill their purpose and their condemnation is often being sought.

So as to avoid such faulty constructions and their danger zones and to conserve the middle strips which are so desirable from the standpoint of traffic, the following principle should be applied: the roadways of cross streets should intersect a two-way street not directly but indirectly, as demonstrated by the schematic sketch of a street system with varying distances between the cross streets (*Ill. 32*). The rules for one-way streets apply also to such cases, which means that the necessary distance between the in- and off-side curves of the cross street and the turning roadway, respectively, must be observed. Should half the distance between two cross streets be longer than the distance between those curves, the middle strip can be conserved between the corresponding turning roadways. Special exit lines can be provided for apparatus of the fire department and ambulances stationed in these side streets.

Comparing a crossing on a straight line, as shown in *Ill. 31*, with an indirect crossing based on oblique crossing lines and turning roadways, in accordance with my system (*Ill. 33*), we find that the intersection of traffic has been eliminated. The roadways within the oblique crossing lines carry two moving traffic lanes each, thus permitting a diagonal crossing of the lanes. The heavy interrupted line shows the track of a vehicle unable to find immediately a suitable gap permitting the oblique crossing. Should the density of traffic make it necessary to widen the turning roadways, the corresponding strip can always be cut out of the concave end of the middle strip. In reply to a critic: a driver who finds it impossible, for some reason, to cross the lanes within the oblique crossing line, knows that he will find, within a short distance, another turning roadway where he can turn around. He will merely have to pay with a small loss of time for his lack of driving ability. The crossways compel the pedestrians emerging from side streets to make a detour, but they offer, on the other hand, a greater degree of safety, because only one lane of moving traffic has to be crossed. Pedestrians have no longer to face the crush of vehicles coming from different directions (*Ill. 31*).

All these examples deal with usual street crossings where, as a rule, the roadways of cross streets are not separated by middle strips. In cases where the cross streets have middle strips, the automatic regulation of traffic and the smoothness with which traffic can proceed is still more evident. *Ill. 34* shows the plan of such a cross street leading into a main thoroughfare. The fundamental layout of the main artery remains unchanged, but the sufficiently wide middle strip of the cross street permits the construction of a turning roadway close to the junction, giving relief to the traffic on the oblique crossing line of the main throughfare. Besides, we

shall have a new crossway where the main artery can be crossed safely also in the line of the cross street. The location of the turning roadway close to the abutting end of the cross street is very suitable, the speed of traffic being reduced on the in- and off-side curves of the separated roadways; besides, it gives us a last chance to turn around before reaching the main throughfare.

On suburban and interurban highways, too, we find street crossings with varying density of traffic. Here, also, the ideal should be to lay out the traffic ways as far apart as possible. This would permit high speed and, at night, the full use of headlights without blinding drivers proceeding in the opposite direction. Between the roadways as well as on both sides of the highway, strips of land, improved with greenage, should be reserved. On these strips, which should be as wide as possible, no permanent buildings should be erected. This right-of-way will give us ample space to pave the highway from the outside toward the road axis; in the original layout of turning roadways near cross streets provision should be made for this eventual pavement-widening. Non-separated roadways of side streets should be divided by specially shaped islands when approaching an arterial highway. These islands provide crossways for pedestrians. *Ill. 35* shows a turning roadway on a highway.

Should the construction of a continuous separating middle strip be impracticable, an oblong island should be established (*Ill. 36*) which will permit diagonal crossing. Here, too, single or double turning roadways can be provided.

These two sketches show new constructions. But innumerable miles of highways have been constructed and the call for grade separations at existing crossings is growing more and more urgent. And really, there is no use in constructing great arterial highways of 150 feet width and more when traffic is being held up every half-mile or so by intersections. The despair of the public and the authorities is quite comprehensible and the call for the elimination of such traffic-checking intersections absolutely justified, but the suggestion to separate the grades seems rather premature, without even considering the expense involved. Highways of sufficient width would not be so swamped with traffic as at present if they were carrying an uninterrupted stream of vehicles over their entire length; but under the present system, a short, tightly packed column of cars alternates with a long stretch of road where only a few vehicles proceed on their way. (See sketch of density of alternating cross traffic, *Ill. 37*). Now, for this problem too my system gives us the right solution. Instead of expensive and as yet unnecessary grade separations, it shows us how traffic intersections on highway crossings can be eliminated thoroughly and at comparatively low cost (*Ill. 38*).

The existing street surface can be used to a large extent for our purpose, especially when the second oblique crossing line is constructed at a sufficient distance parallel to the original roadway, preferably, of course, on that side of the road which has been reserved originally for the future widening of the highway. The separated new roadway then runs naturally into the oblique crossing line and the normal indirect crossing is established. Concentration of the cross traffic on as few as possible cross streets, and adequate construction of the highway crossings, will result in an even distribution of traffic on the arterial highways, not to be disturbed even by the irregular afflux of cross traffic. Thus the steady flow of traffic on our highways is assured and grade separations can be restricted almost wholly to railroad crossings.

In certain cases where the construction of under- or over-passes cannot be avoided—sometimes such constructions are favored by the natural grades—my system simplifies the task to an astonishing extent. Actually, so as to eliminate all grade intersections, not less than eight connecting ramps are needed. The application of my system reduces this number to two one-way connecting ramps! (*Ill. 39.*) The sketch shows the fundamental difference between the two systems. Local traffic necessities will have to decide on which side of the highway the ramps should be constructed.

VII. Street Crossing Without Intersection of Traffic on Two-Way Streets with Equal Density of Traffic

Should traffic on each of two intersecting streets be more or less equally heavy, the construction of the indirect crossings will differ somewhat from the one suitable for crossings of streets with different density of traffic. Islands in curbstone height, usually of circular shape and laid out in the center of the crossings, are nothing new. But faulty constructions have often discredited the technical value of those islands.

A few simple examples, showing the basic points of the problem, will demonstrate the correct construction of islands serving their purpose. The traffic lines show the center lines of moving traffic; turning roadways are indicated by short arrows, showing the direction of traffic; hatched spaces for stop lanes, dotted lines for crossways, and broken lines indicating the eventual widening of roadways, complete the picture. As bases we have taken two-way streets with two lanes on each side of a middle strip of normal (40 feet) and sub-normal (20 feet) width (*Ill. 40*). We must always keep in mind that the minimum radius corresponding to the curbstone curve of the island should never be less than 20 feet; in other words, whatever the shape of the island, the minimum width should be at least 40 feet, even after the completion of an eventual widening of the roadway. As far as possible, these minimum measures should be increased; in such cases the construction should be started at the street corners, where the curbstone curves should also correspond to a radius of at least 20 feet. The roadway around the island—for two lanes 22 feet, for three lanes 31 feet, for four lanes 40 feet wide—adjoining the curbstone lines at the street corners in form of segments delineates the shape of the island, in our specific case a circle. The entire surface of the traffic island should be improved with greenage, so as to prevent its crossing by pedestrians; besides, a good effect from the landscaper's point of view can be obtained. The roadway around the island, to be used in one direction only, fulfills the purpose of several oblique crossing lines —in our case, of four—which have to be crossed in succession. We find again that the number of lanes is equal to the number of all moving traffic lanes running into this roadway. Our sketches show us the junction of two such lanes, running from different directions. An additional third lane has been prepared for the anticipated heavy traffic. The turning roadways close to the junctions provide the above-mentioned crossways for pedestrians.

On crossings of two-way streets bisected by middle strips of 7, 5 or 2 feet or by a mere line, the installation of such islands, eliminating traffic intersections, is also possible. This applies also to crossings where the roadways are not separated or where they are separated in some other, non-orthodox way (*Ill. 41*). In such cases, however, the curbstone lines, consisting of segments having a minimum radius of 20 feet and connected by a straight line, will cut deeper than usually into the corners of the city blocks. Islands with a diameter of only 40 feet, placed in the center of the ordinary crossing of non-separated four-lane roadways, require an incision deeper by 7 feet than the one necessary in cases where the curbstone curve has a minimum radius of 20 feet; accordingly, the required rounding-off of the building line is comparatively modest.

Our examples show the application of the rule concerning the number of moving traffic lanes to the oblique crossing lines around the traffic islands, but the rule which determines the length of those crossing lines has not been applied. This requires the corresponding slowing-down of indirectly crossing traffic; the extent

of this speed reduction depends on the density of traffic and greatly on the drivers' ability. Two examples will give us the basic elements for the application of the second rule. The sketch shows a simple crossing of non-separated four-lane roadways (*Ill. 42*). The comparatively small circular traffic island has been developed to a square shape and a corresponding larger size; the roadways run toward the corners, either at an angle of 45° or in continuation of the oblique crossing line. A chain of constructions of this kind results in a street system which should be very interesting for town planners because it gives us city blocks of various lengths and angles.

VIII. Variations of the Sections V, VI and VII

In the beginning of the preceding section we examined the crossing of streets where traffic is about equally heavy. Nevertheless, a marked preference can be given to the traffic moving on one street, as shown by the traffic lines depicted in *Ills. 40* (center) and *41* (right); in our specific case the street running from left to right has the advantage. On this street a driver will not have to make a wide detour in order to avoid the island; when traffic is less heavy, he will even be able to proceed almost on a straight line. In certain cases where this consideration cannot prevail, the traffic island should form an oval with the axis lying in the line of the narrower street (*Ill. 43*). The first picture, as contrasted with *Ill. 41* (right), gives an idea of the innumerable and heterogeneous variations which can be applied to the construction of traffic islands, whose shape will depend not only on the rules concerning the number of flowing traffic lanes, the length of oblique crossing lines and the preference given to traffic on certain streets, but also on the number and the kind of the intersecting streets and their angles of convergence. *Ill. 43* depicts just a few examples. Want of space precludes the examination, in these columns, of further very important problems, as, for instance, the layout of squares crossed by one- and two-way streets with separated kinds of traffic, the installation of street-car lines in conformity with my system, and so forth. This essay must needs be limited to the explanation of the fundamentals of my system.

IX. Conclusion

A few more words on the subject of traffic islands and the task, especially, of the depicted comparatively small islands. As a rule, traffic islands should be constructed only where it is absolutely necessary, in other words, where approximate equality of traffic on two intersecting streets seems desirable or has already been attained. This sounds like a negation, but it is none, really. The less we break the line by establishing traffic islands, the higher will be the speed of traffic. This is very important, of course, on major throughfares. Therefore the one-way system should be generally applied to streets where the construction of a separating middle strip of at least 20 feet is not practicable. Traffic islands fulfill their purpose by insuring the steady and even flow of the moving traffic or by favoring the traffic approaching on certain streets. Further, the shape of each traffic island should be determined so as to compel approaching drivers to observe the proper speed; in other words, an appropriate layout of the island curb will induce the driver to slow down in time. Then he will also be able to pay attention to pedestrians crossing the roadway close to the island. The layout of all street crossings in accordance with the system affords an excellent view of approaching vehicles, so that collisions, if any, could be attributed only to carelessness. Naturally, head-on collisions are out of question. Traffic control officers will have to take care of malicious and grossly negligent drivers.

Something has to be said about the general application of the system. The longer the way, the more time can often be saved. Our roadways have also the task of regulating the traffic. My system recognizes only one-way streets or separated roadways on two-way streets; the layout of these roadways has to be in accordance with the respective direction of traffic, and the curbs have to be constructed so as to determine that direction. The off-side lanes are designated as stop lanes; on curves the second lane is used by very long vehicles, like trucks and busses. Especially where my system is just being introduced, the installation of direction signs will be necessary. For streets in built-up sections, so-called direction lamps would be most suitable; they have already been recommended for Havana. Fixed at a sufficient height above the street level, their bottom shows arrows indicating continuously the different directions of traffic. These lamps are not to be confounded, of course, with the actual traffic lights with their peremptory orders of "Go" and "Stop." In many places such lights will continue to be necessary, but my system seeks the solution of the traffic problem without such coercive measures. By developing the driver's sense for sportsmanship, fair play and the natural laws of traffic, we shall also teach him to show consideration for the pedestrian, whose situation will certainly be improved by the application of the system. My system not only eliminates all traffic intersections, but also does away with those ill-famed left turns. This is to be considered as one of its greatest blessings for the motorist as well as for the pedestrian; on two-way streets no vehicle can turn to the left into a cross street.

The density of traffic should determine the width of the roadways; existing roadways, on the other hand, determine the traffic. Consequently, the application of my system requires roadways with the proper number of lanes, able to take care of the smoothly flowing traffic. The traffic problem encountered on street crossings or squares can be solved only by regulating traffic adequately on the approaching streets; likewise, traffic problems within a certain section can be solved only in accordance with a traffic plan dealing with the entire street district, not the other way around. It is the task of town planners and traffic engineers to regulate the actual traffic and to provide for the future. In this essay I have shown details and their solution in conformity with the system. In a future issue of this magazine I hope to demonstrate the practical adaptability of the system, based on a suitable combination of the depicted partial solutions; its fitness for all types of communities ranging between a modest country village and a metropolis; its application to traffic plans which have been prepared for Havana and for a satellite town actually under construction; and to several applications planned or executed.

It may be that some of the partial solutions are not yet quite perfect in all their details; it may be, too, that the system cannot be applied everywhere, but I believe that where there is a will there is also a way for "street crossings without intersection of traffic."

Why Not Require Recreation?

"Why not try to get a little more legislation along the lines of providing things for the boy to do, rather than constantly passing prohibitory laws? Why not definitely declare that playgrounds and playground expenditure are fundamental parts—not only of the school system, but of the general health laws of the state? Why not require that for every thousand children under twenty-one in a community there shall be maintained a certain number of supervised entertainment halls and playgrounds and provide for the maintenance thereof? Why not take part of the money now spent in the delinquent courts and give the boy out of school something to occupy his time?"

—JOHN H. BARNSEY, in the *Evening Herald-News*, Joliet, Ill.

Unchoking Toronto's Downtown Area at Minimum Cost to the Municipality

By NORMAN W. WILSON

THE immediate need in Toronto is to accomplish some traffic relief in the constricted streets of the business center, before the opportunity to do so is lost by the erection of modern buildings. Under the Planning and Development Act passed in 1912, the city has control of the platting of lands within five miles of its boundaries, and assurance of their subdivision in conformity with a major street plan. But the streets as laid out before that date are woefully discontinuous, and almost without exception 66 feet wide. Several very important widenings have been carried through in the intermediate or residential zone, but to date virtually nothing has been done to better the street system in the business center.

The growth of Toronto, both as to center of population and as to business area expansion, has been steadily northwestward. Queen's Park, of 150 acres, the seat of the provincial University as well as of the legislative buildings, is about one-half mile west and a little less than a mile north of the present business center, and lies very close to the center of gravity of population. Its approach from the south is by University Avenue, 180 feet wide, and three-quarters of a mile long, which, however, bluntly starts at Queen Street and does not enter the business area. As yet, no buildings of any exceptional value have been erected in the line of its direct extension southerly, or for a block to the east thereof, but the last few years have seen the erection of many million-dollar structures ever closer to the line of the avenue.

Its central position and freedom from car tracks make University Avenue an outstanding motor highway. With the enormous growth of traffic during the past decade, and the continuous congestion occurring at its lower end, the demand for its extension has become insistent.

Architectural Control and Compulsory Excess Condemnation

In April, 1928, the Legislature passed the University Avenue Extension Act, giving the city exceptional powers to extend University Avenue as a noble street through the downtown area to connect with the boulevard system along Toronto's ten miles of publicly owned waterfront. If not utilized, the powers granted expire on December 31, 1930.

This legislation was unique in several ways:

1. It gave the city absolute control over the appearance of the buildings to be erected along the extended street.

2. The city, if it utilizes this special act, is *compelled* to expropriate to a depth of at least 150 feet on either side of the extension, so that it may profit on the sale of new frontage from the increased values due to the improvement.

3. Any loans made to finance the work do not affect the borrowing power of the city.

4. The values of any lands (exclusive of buildings) expropriated are fixed as of the date of the passing of the Act—April 3, 1928.

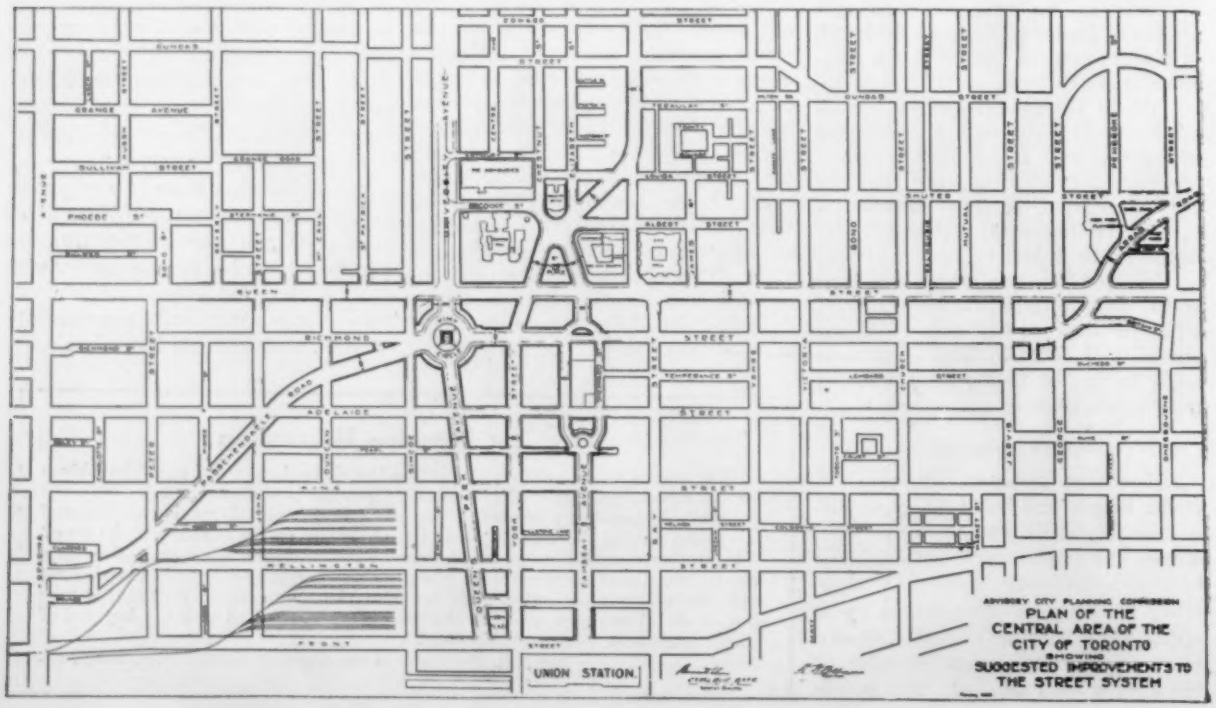
5. Lands expropriated but not actually entered upon by the city continue to pay taxes.

In addition, the existing provisions of the "deferred widening" sections of the municipal act were incorporated in so far as they could be made to apply, viz.:

6. The city can expropriate, but defer actively proceeding with any street improvement or any expenditure until a date specified in the by-law of expropriation.

7. No permanent buildings may be erected on the lands expropriated in the interval, subject to certain rights of appeal for relief to the Ontario Municipal Board, in the case of owners extraordinarily adversely affected.

Following the passing of this act, the Advisory City Planning Commission was appointed to advise the City Council



on planning problems generally. It was implied that the first matter to be dealt with would be the extension of University Avenue.

Elements in the Problem

This problem had several phases, to every one of which public opinion called for a solution:

1. The relief of the immediate congestion at the foot of University Avenue
2. An entrance and getaway street clear of car tracks into the heart of the business district
3. A connection to the waterfront boulevard system
4. Improving the appearance of the southerly end of University Avenue to be in keeping with the Parliament Buildings at its head
5. Joining the legislative center to the business center of the capital city by a dignified street
6. The development of some monumental street, desirably within view from the new Union Station, expressive of the city's dignity and pride
7. Improving local traffic conditions in the downtown area, by splitting in two the long 800-foot east-and-west blocks
8. Providing more fitting sites for new commercial buildings than midblock sites on narrow streets
9. Increasing assessment values and city tax receipts by creating a greater number of corner frontages
10. Utilizing the benefits of the University Avenue Extension Act, if possible

The conclusions reached by the Commission after several months' study were, first, that all the conditions outlined above could not be obtained by a single street extension; secondly, that the rate at which building was proceeding in the business area, and the type of structures being erected, rendered it certain that if immediate steps were not taken to open up the downtown area, the opportunity of doing anything in any satisfactory way would be lost for good.

A Fifteen-Year Program

Space forbids a discussion of the local conditions leading up to the Commission's specific recommendations. Such were that the city undertake some sixteen street opening and widening projects as a single unit of a city plan, these to be proceeded with at once under the "deferred widening" provisions of the Act, on a progressive program spread over fifteen years; that on the improvements adjacent to the extension of University Avenue, excess lands to provide resale frontage should be expropriated.

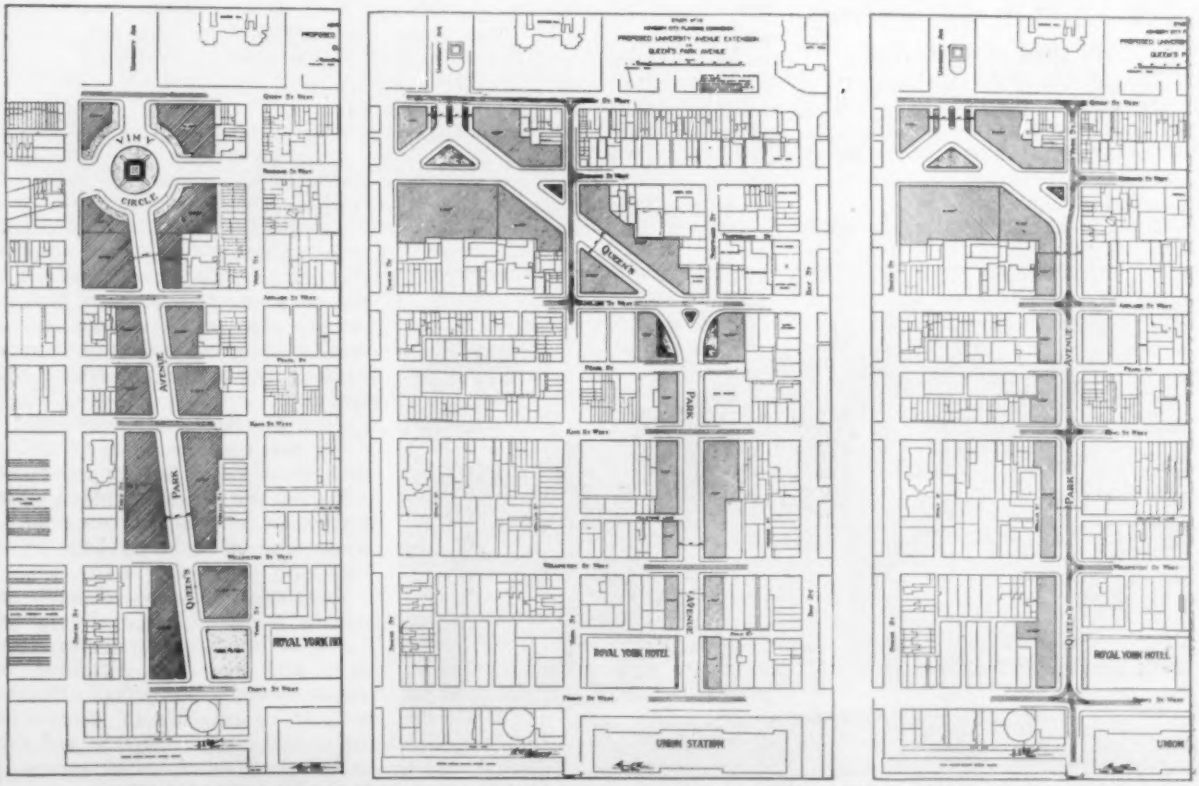
Allowing for anticipated resales at very conservative rates and values, it was estimated that $13,000,000 working capital would be required to initiate the work and carry it to completion in fifteen years, at which date the $13,000,000 would be wholly expended, but street improvements otherwise costing over twice that amount if carried out individually under the methods usually adopted, would stand complete.

Interest and retirement charges on a $13,000,000 city loan represent very closely one mill on present assessment. Increased tax receipts gained from annually increasing assessments due to the improvements would be available to offset this annual city commitment. At most, ten years should see the end of any addition to the mill rate to meet such annual debt charges.

In the event that Council sees fit to limit the improvements to one street extension only, a course which the Commission recommends against, the Commission expressed its preference for a diagonal extension (center plan).

This street piercing the business area on the very edge of present high building development, and splitting the extremely long blocks, shows on a very conservative basis of resales of the excess lands proposed to be expropriated an ultimate profit of nearly one million dollars, without regard to interest, etc., on the 10¾ million dollars needed for initial expropriation.

The Commission's report is purely advisory. It has been referred by Council to the permanent city officials for their report, upon receipt of which action by Council is anticipated. If approved, minor amending legislation is needed to make the University Avenue Extension Act apply to the wider scheme. No difficulty is anticipated in that respect.



TYPICAL PLANS FOR THE EXTENSION OF UNIVERSITY AVENUE AS QUEEN'S PARK AVENUE IN TORONTO
The plan shown at the left is the first choice of the Advisory City Planning Commission

Municipal Garage Organization and Management

By G. M. HUTTENLOCH

ASSISTANT TO DIRECTOR OF TOWN PLANNING RESEARCH, DEPARTMENT OF PUBLIC WORKS, MONTCLAIR, N. J.

THE organization of a central garage for operation, repairs and storage of municipal automotive equipment, particularly in municipalities with a population of from 20,000 to 40,000, is a growing practice. The garage is concerned with the maintenance and storage of the municipal fleet of automobiles, trucks, road equipment and similar special equipment and must serve these branches of the government as cheaply and as adequately as privately owned garages or department repair shops. To achieve this, the garage must be operated independently of all other departments.

The municipality which determines to establish a central garage in perfecting its organization must, of course, first decide which department of the governing body shall have charge and to whom the subordinate head shall be responsible. It is advisable not to make it subordinate to a bureau of any particular administrative department, but rather directly under the supervision of one member of the governing body. To attach it to any particular bureau or administrative department tends to make it a garage for that department rather than for the whole government.

The Head of the Garage

The selection of the superintendent of transportation—the operating head of the garage—places the administration of the garage and the selection of the remainder of the garage staff and workmen in his hands.

There is a matter of policy which must be determined upon at this point by the municipal governing body and adhered to rigidly. That is, to what extent automobiles used in various departments shall be in control of the superintendent and to what extent he shall furnish drivers for the cars. Admittedly, police cars, fire apparatus, city ambulances, and other special machines should at all times be driven by employees of their respective departments and in control of the respective department heads. But how far the garage shall go in furnishing cars and drivers for the mayor, other members of the governing body and officials can be determined only by the individual municipality. There should not be divided authority.

It is advisable, however, to have all trucks controlled by the superintendent and chauffeured by garage employees. This is particularly true because in emergencies the superintendent must have authority to use the trucks as he determines. It is a waste of money to have trucks, used perhaps during the summer months for park work, idle during the winter while the town is hiring other machines for snow plowing, snow removal, ash collection, etc. In addition, there are many times when trucks of one department are not being used for several hours during the day and other departments are hiring machines. A careful supervision and plan of work for each day can reduce the number of trucks owned and the number hired. The employment of competent men to operate these machines, under direct supervision of the superintendent, has been found to lengthen the life of this expensive equipment, to lessen repair bills, and to reduce operating costs. The remainder of the organization is the employment of repairmen, blacksmiths, painters and similar mechanics and laborers to do the actual work of keeping the machines in running order and prevent losses in time and deterioration.

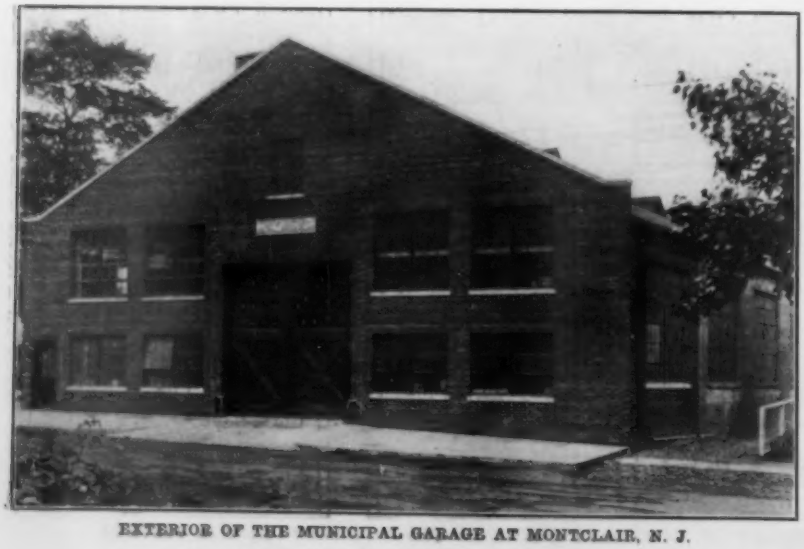
Between the workmen and the superintendent are the garage foreman and the supply foreman. These two men must be trained both in a general knowledge of repairs and in record keeping.

The supply foreman's job is to issue parts as needed, see that a sufficient number of parts are on hand, check oil and gasoline supplied, and recommend changes in supplies which he believes will aid in keeping the equipment in good shape. The other foreman, of course, runs the shop.

In keeping the repair records, which are important in determining the types of machines that best stand up, and the maintenance cost, the main necessity is, of course, accuracy.

With the organization completed, the number, location, size and type of buildings must be determined.

While many municipalities will find a single building sufficient, geographical and other conditions to be met by individual departments may make it advisable to establish several branch garages in different sections. But these should be but branch garages, maintained primarily for storage purposes. The central garage's location should be preferably near transportation facilities, but the effect of the garage on surrounding property values, and other features, may necessitate another location.



EXTERIOR OF THE MUNICIPAL GARAGE AT MONTCLAIR, N. J.

The Montclair Garage

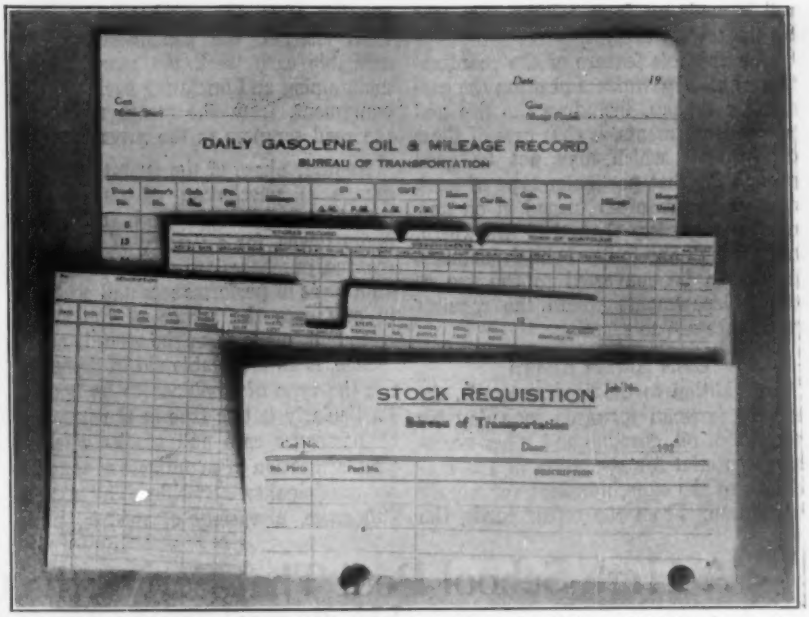
The municipal garage at Montclair, N. J., which will be used for illustration, is located near the geographical center of the town, in a section where property values were affected very little by its erection.

This garage, which is a workable size unit for a central garage, is approximately 65 feet by 150 feet, two stories high, with the roof supported by trusses, allowing a clear floor. Whether it would be advisable to increase the size of the central garage beyond this, or instead establish branch garages, is for each municipality to determine.

At the front of the Montclair garage a small section is partitioned off. One side, both first and second floor, is used for supplies, with oil tanks on the second floor to allow a gravity flow. Gasoline pumps, attached to tanks beneath the concrete sidewalk in front of the building, which can be filled directly from the delivery trucks, are in the supply room. The other side is devoted to lavatories and a paymaster's office on the first floor, with the offices of the superintendent overlooking the floor of the garage through glass partitions and connected with the Municipal Building, with a direct telephone line, and an inter-office telephone system throughcut the garage.

This plant was the outgrowth of an old fire-house located on the main thoroughfare of the town and inadequate for the town's needs. It was erected a few years ago under direction of Commissioner Arthur P. Heyer, Director of the Department of Public Works, and has remained in his charge.

The equipment which is installed in a central garage, besides modern garage machinery, such as hydraulic presses, electric drills, brake-lining apparatus, valve-grinding machines, etc., is determined largely by the needs of the municipality and the number, type, and size of the automotive equipment to be served. At branch garages only tools for immediate emergency repairs are needed, with the greater part of the repair work done at the central garage. It is advisable to maintain paint, carpenter, blacksmith and similar shops at the main garage, but these are not needed in the branches.



FORMS EMPLOYED IN THE OPERATION OF THE MONTCLAIR GARAGE AND THE MUNICIPAL MOTOR VEHICLES HOUSED THERE

INTERIOR VIEW OF MONTCLAIR GARAGE

Points of Economy and Convenience

Montclair has found that in many cases trucks, both large and small, which have outworn their usefulness for the type of work for which they were purchased, can be converted at small cost into machinery for some special work. An example was the conversion of a small dump-truck into a sand-spreader for road repair work.

The first floor of the Montclair garage is marked, similar to public garages, into stalls for each piece of equipment, and each car is numbered and must take its particular space. This is done not only to prevent confusion, but because the number of each truck is used in all records and each machine is always referred to by its number.

This arrangement is an aid in winter in rapidly starting snow removal. When the winter season arrives, holders are bolted to truck frames of all equipment used for plowing, and heavy concrete blocks are used for ballast. The empty trucks are placed convenient to an overhead traveling block and fall. Plowing equipment for each particular truck is placed at the back of each stall. When weather conditions indicate the possibility of using the trucks during the night, they are headed into the stalls rather than backed in, and if needed can be equipped and started from the garage in a few minutes.

The need of repairs is determined for the garage machines by the superintendent, who from weekly inspections and reports of garage chauffeurs decides what work must be done. Other machines are repaired as directed by the head of the department in the same manner as if the machines had been sent to a private garage.

A Repair Job

The procedure which Montclair follows, and which seems adequate, can best be explained by showing the steps a repair job passes through. An order listing necessary repairs is attached to the trucks to be repaired. The foreman prepares a record card similar to those used in private shops, listing the repairs to be made, and assigns the job to a mechanic. The latter lists the time spent on the car, and the supply foreman notes the supplies issued, both on the card and on a permanent card index inventory kept in the supply room. The cards provide also for the speedometer reading when the car arrives. If the same car comes back within a short time for similar repairs, the first reading is checked against the second, and thus a check is kept both on the work done and on the care given the machine after it leaves the shop. From the repair cards are made up the weekly time accounts of the workmen, and the pay-

roll is made up from a lump sum sent by the town treasurer.

One valuable feature of the coordination of all departments in using the garage for repairs, including the fire and police departments, is that cars of these departments which may not be good enough for that particular type of work and which are often turned in on new machines for less than they are worth, not through any fault of the department head, can be converted to the use of other departments where the requirements are not so exacting.

Costs Always Known

In addition to the repair records, the supply foreman forwards each day his records of oil, gasoline and other necessary material for operation of the machines to the superintendent for weekly tabulation. From the repair cards, the running costs, the overhead and other fixed charges, the superintendent has available each week the exact cost of maintaining and operating each piece or equipment, from the steam roller and the road scrapers to the private cars.

Another phase of the operation of the garage is purchasing of automobiles, both passenger cars and trucks. In many towns, for a variety of legitimate reasons, purchases are not made entirely on a basis of performances and cost, but in any case the advice of the superintendent, made from the records of the garage, is an invaluable aid in determining the type of machines to be bought. Particularly is this true in the purchase of passenger cars and trucks where a standardization of manufacture can save a municipality considerable money. Otherwise, a variety of models, probably each as efficient as any other, are bought by different department heads. This means keeping a larger repair stock than is needed and prevents the substitution of good parts from discarded machines in other machines.

These are the points which must be considered carefully in the establishment of a successful municipal garage: organization of an efficient coordinated organization under one head directly responsible to the governing body or one of its members; erection of an adequate central building in a convenient location, with branches if needed; establishment of proper system of records for operation, maintenance and supplies; standardization of equipment; and cooperation of all municipal departments in using the garage facilities for both storage and repairs.

A High-School Pool That Serves the General Public as Well as the Students

LAKEWOOD, OHIO.—Our new swimming pool, designed and constructed by the Hasbrouck Company of New York City, is located on the Lakewood High School grounds but in an independent building. This includes two locker-rooms, two offices, two shower-rooms, four washrooms, seating space along each side of the pool, and a balcony at the north end of the pool. The total seating capacity for spectators is approximately 700.

The outside dimensions of the building are: length, 125 feet; width, 63 feet; height, 40 feet. The outer construction is of gray brick. The pool proper measures 73 x 32 feet. The depth is graduated from 3½ to 10 feet. There are three diving-boards at the deep end of the pool, a 1-foot board, a 6-foot board and a 10-foot board. The bottom and walls of the pool are of glazed sand gray tile. There is a 3½-foot strip between the edge of the pool and the spectators' gallery. This is of rough square-patterned sand-gray and red tile. Under the pool itself are a large storage room and a filtration plant. Fresh water enters the pool at the shallow end and goes out at the deep end, then into the filters, where it is purified before reentering the pool. In addition, there is a vacuum system for cleaning the pool. The pool capacity is 120,000 gallons.

During the school year the pool is under the direction of the High School from 8.30 a.m. to 6 p.m. From 6 p.m. until 10, and on Saturday from 9 a.m. to 12 noon it is under direction of the Department of Public Recreation. During the vacation months the pool is operated from 9 a.m. to 10 p.m. every day except Saturday and Sunday. During the past season the pool was operated on the following schedule:

9 a.m. to 12 noon, girls
1:15 p.m. to 5:30 p.m., boys
Mondays and Wednesdays, 6 to 10 p.m., women
Tuesdays and Thursdays, 6 to 10 p.m., men
Fridays 6 to 10 p.m., men and women

A fee of 10 cents is charged for children. For this, sterilized suits and towels and use of a locker are received. A fee of 25 cents is charged for adults with the same service. Swimming lessons are given at specified periods, with a 25-cent charge per lesson. Instruction is also given in Red Cross life-saving work.

D. D. HICKS,
Supervisor of Athletics, Department of Public Recreation, Board of Education.

SWIMMING POOL IN LAKEWOOD, OHIO, HIGH SCHOOL

Do These Conditions Exist in Your Local Police Station, County Jail, or Workhouse?

By HASTINGS H. HART, LL.D
CONSULTANT IN DELINQUENCY AND PENOLOGY, THE RUSSELL SAGE FOUNDATION, NEW YORK

THE most prolific crime-breeding prison is the police station, or the village lockup. There are no reliable statistics of these institutions, but there are probably at least 10,000 of them in the United States. These institutions receive hundreds of thousands of prisoners who are usually detained less than twenty-four hours, although prisoners sometimes remain for a number of days. The greater part of the police stations and lockups are badly lighted, poorly ventilated, and vermin-infested. In many cases they are used not only for the confinement of persons arrested for offenses against the law, but also as a lodging place for tramps and vagrants. In many of them it is customary to confine from three to ten or twelve, or even more, prisoners in a single room. It is the exceptional case when the lockups are provided with a separate cell for each prisoner. In most cases the prisoner sleeps upon a wooden shelf or an iron grating and in some cases directly upon the floor. Usually blankets are provided or bedding and in a few cases mattresses, but often the bedding is ragged and is dirty and vermin-infested. The plumbing is often defective, and it is exceptional to find a police station or village lockup where there is any adequate classification. As a rule, the women's quarters are better kept than those of the men and are provided with fairly clean bedding, but it is a common thing to find girls or women, arrested for the first time, for shop-lifting or for some petty offense, confined in the same room with vicious and diseased prostitutes.

Young men and women arrested for the first time usually have their first prison experience in one of these lockups, and that experience is humiliating and degrading to the last degree.

A gentleman recently related to me the following incident. He said: "A few evenings ago, my son, a boy of sixteen, was out on the street with a group of boys. A policeman was making an arrest and the boys, moved by curiosity, gathered around him. The officer warned them away. My son did not move quickly enough to suit him and he was arrested for obstructing an officer and placed in the police station. He was not allowed to communicate with me and had to spend the night in that place, in association with convicts, drunks and bums. The boy feels so humiliated and degraded by this experience that I doubt whether he will ever recover from it."

The police station and village lockup are the greatest crime-breeders because they receive the criminal in the early stages of his career and they handle many more inmates than all of the other prisons combined.

The Prison as a Crime Breeder

At the Institute of Public Affairs, held at the University of Virginia, August 4-17, 1929, special interest was shown in the round table conference on Law Enforcement, under the leadership of Dr. Raymond Moley, Professor of Public Law at Columbia University. The accompanying article comprises excerpts from a paper on "The Prison as a Crime Breeder," presented at one of these sessions. In addition to the sections here published on local penal institutions, Dr. Hart described some of the conditions existing in state and federal penitentiaries and offered practical suggestions for their improvement. The speaker also outlined several general measures for preventing crime breeding, including (a) improvement of personnel by placing prison workers on a par with police- and fire-department workers; (b) abandonment of force and fear as the ruling powers in prison; (c) finding a solution for the labor problem which lies at the root of good prison discipline; (d) a properly organized probation system; and (e) a sound parole system.

The County Jail

The county jail comes next to the police station as a crime-breeder. After a prisoner has spent a night in a police station or a lockup, if the municipal judge or the justice of the peace decides to hold him for the grand jury, he is remanded to the county jail; and many prisoners arrested by the sheriff or his deputy on a criminal charge are taken directly to the county jail to await the action of the grand jury, and if the grand jury finds an indictment against the prisoner, he may then be held for weeks or months awaiting trial in the criminal court.

Most of the county jails are bastilles, built of stone or brick, with blocks of steel cells called cages, and they are literally cages. The steel cages are usually separated from the outside windows by a corridor and the interior of the cells is actually so dark that it is necessary to use artificial lights, day and night.

Most of the jails of the country are overcrowded and it is the general practice to confine two prisoners in each cell. This practice directly promotes the worst vices of which the human race is capable. The prisoners are kept in idleness, except for the ordinary domestic work of the jail. A young man has been going the way of least resistance and has gotten out of one scrape after another; but at last he commits an overt act and feels on his shoulders the hand of the deputy-sheriff, who says: "Come with me; I have a warrant for your arrest." That first arrest is a tremendous shock. He realizes for the first time the consequences of the reckless course which he has been pursuing. He says: "Good God! If I can only get out of this trouble I will never go wrong again."

This is the moment of opportunity. More can be done to redeem that man in the first three days after his arrest than can be done in six months after he has been sent to a state reformatory.

What do we do at this opportune time? We thrust him into a steel cage where he is exhibited like a wild beast in a menagerie; we force him into intimate association with the worst people in the county. These vile fellows quickly discover that the newcomer is "soft"; his voice trembles and there are tears on his cheek; and they proceed to ridicule his scruples, to persuade him that he has been ill-used and to tell him of some shyster lawyer who can get him off for a price. Some jails are clean and others are filthy, like the ordinary lockup, but in either case the atmosphere of the jail is vile and the surroundings are degrading. It is strictly within the limits of the truth to say that the great majority of those who are sent to jail

infallibly come out worse than they go in.

The experienced criminal teaches the young man the arts of crime and persuades him to join in criminal enterprises. If these overtures are rejected, he is liable to be blackmailed and persecuted by his fellow prisoners after his release. . . . While there are notable exceptions, as a rule the county jails of the United States, large and small, are literally schools of crime.

Municipal and County Workhouses and Prison Camps

Workhouses and prison camps differ greatly in their equipment and organization. Some of them are as abominable as the worst county jails. They differ greatly in the quality and capability of their superintendents and guards, in sanitary conditions, and in the feeding of the prisoners. Examples of good institutions of this class are the Westchester County Penitentiary at East View, N. Y., the Erie County Workhouse near Buffalo, N. Y., and some of the prison camps in the states of Virginia and Alabama.

As a rule, however, prisoners remain in these institutions but a short time and there is very little intelligent effort for their reformation.

How to Organize Non-Crime-Breeding Prisons

As already stated, the most mischievous crime-breeding prisons are the police stations and lockups. The destructive effect of these institutions is chiefly due to the fact that prisoners are placed two in a cell, or are herded together in rooms which hold from three to twenty prisoners.

This evil can be entirely prevented by building police stations and lockups in such a way that each prisoner shall be kept in his own cell and shall not have any association with other prisoners.

Each cell should be about 6 feet wide, 8 feet long and 10 feet high, giving a total cubic space of 480 feet.

The front of each cell should be composed of open lattice work, and the cells should have outside windows or the cell fronts should be within four feet of a window. The windows should be built like the windows of modern schoolhouses and factories, so as to admit a maximum of light and air.

Cells should be placed in two rows, facing east and west, and should be entered by a six-foot corridor without gratings so that no prisoners need see any other one.

Each cell should be supplied with plumbing and a washbasin and should be thoroughly cleansed after the removal of each prisoner, and the beds should be so constructed as to permit the easy extinction of vermin. The cells should be built in rows of 10 to 20, with as many successive floors as may be necessary, but each floor should be entirely separate and distinct, like those of an office building. The building should be constructed of brick or cement and the walls and foundations should be of sufficient strength to permit the construction of additional floors as needed. Separate and distinct elevator service should be provided.

Model police stations can be found in the city of London. In 1925 I visited the Marlborough Street police station, which had been remodeled about ten years previously. The cells were approached by a corridor with a mosaic floor and rounded corners. The floors were of tile and easily cleaned. There was excellent janitor service and each cell was thoroughly cleansed before receiving new inmates. Fresh fumigated blankets were provided. The matrons and wardens were competent and faithful. The atmosphere was entirely different from that of the ordinary American police station.

Non-Crime-Breeding County Jails

As we have seen, county jails closely rival police stations as crime-breeders. The chief remedy for the abuses of county jails is to classify the prisoners. Keep the hardened and dangerous prisoners by themselves; keep the degenerates by themselves; keep the violators of the speed laws and decent self-respecting prisoners by themselves.

But what principle of classification can be adopted which will enable the ordinary jailer who is a man of limited intelligence to make the necessary discrimination? The answer is: make as many classifications as you have prisoners; in other words, keep each prisoner by himself in order to prevent conspiracy, instruction in crime, and vicious practices.

This proposition instinctively evokes a protest against the horrors of solitary confinement, but apply the *argumentum ad hominem*. Suppose that you yourself having through carelessness run over a foot-passenger on a street crossing, or having violated the Volstead Act, become a prisoner in a county jail, which would you prefer—to be forced into intimate association with the vile and ribald crowd which populates a jail, or to be placed in a room by yourself, with books, writing material, occasional visits from friends and frequent visits from your jailer? This question answers itself. But, on the other hand, suppose that you belonged to the other class and were temporarily locked up. It might be a good thing for you to sit and meditate on the evils of your past and the inevitable consequences of your wrong-doing. It works both ways.

The states of Ohio and Minnesota have had laws for many years requiring that wherever the construction of the jail will permit, each prisoner shall be kept in his own cell; but these laws have long been inoperative because of overcrowding. In England, France and Belgium each jail prisoner is kept constantly in this own cell, except when he is taken out for exercise, where again he in separated from other prisoners. Jail prisoners serving sentence are required to work in their own cells; those awaiting trial are permitted to work if they desire, and most of them accept the opportunity.

The difference in the discipline and morale of the jails in these countries as compared with American jails is very marked.

Non-Crime-Breeding Workhouses

As a rule, convict prisoners for short-term offenders have little influence for the improvement of the character of the inmates. Their stay is usually short—in many cases only a few days. Many of the prisoners are drunks, bums, and vagrants who are considered unimprovable.

The first step to improve the morale of the workhouse is to discontinue short sentences. It is worse than useless to send any man to prison for less than thirty days. The drunk who is sent up for ten days remains only long enough to acquire a thirst, and the short-term prisoner does not have time to acquire any capacity for industrial work. A much better system is that which prevails in England and in Massachusetts, namely, to impose a fine, payable in weekly installments, with imprisonment in case of non-payment. Under this plan the prisoner is forcibly reminded every week that he has offended against the law and subjected himself to financial damage.

Many have felt that it was useless to attempt reformatory work in workhouses; but it has been demonstrated in institutions like the Westchester County Penitentiary in New York and the State Farm for misdemeanants at Bridgewater, Mass., that it is possible to secure visible improvements, even in such prisoners as these, by a wise and rational discipline.

The City and the Crystal

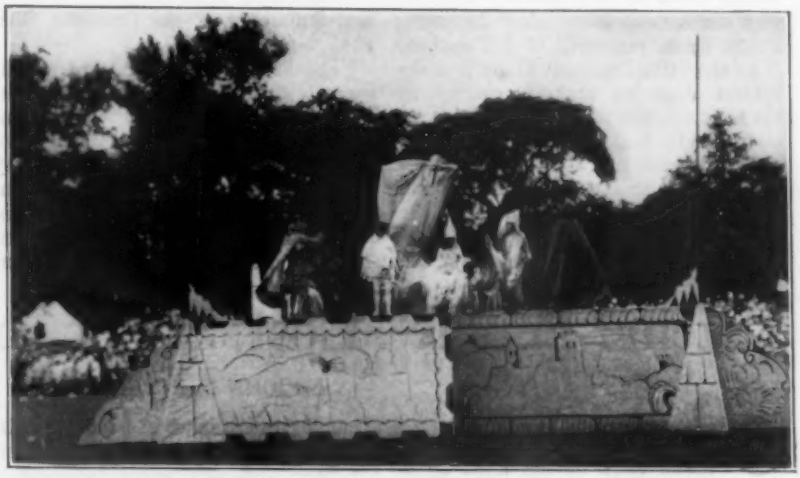
It is not improbable that we sometimes overestimate the shortcomings, chiefly felt in the larger cities, in our municipal system, for the system is an open one, in which all are interested to bring its abuses into the light of day. The fine observation of Lord Bacon fitly applies: "The best governments are always subject to be like the fairest crystals, wherein every icicle or grain is seen, which in a fouler stone is never perceived."

—JOHN F. DILLON.

Drama Brings Magic to the Playground

"LONG, long ago a group of children who lived in Playland went a-knocking at the gates of Storyland, and knocked and knocked till the Keeper of Stories opened the gate . . . ."

That was the beginning of "The Sleeping Princess," one of the recent summer pageants such as are given each year at Belle Isle by all the playground children of Detroit. And a very good beginning it is, too, because all playground children know that the Story Keeper's gate never stays tight shut for long nowadays, and at least once every summer on many playgrounds, and with the aid of their dramatic director, they entice some of the most fascinating of all the old magics and enchantments to emerge from Storyland and appear as a playground drama in which everybody takes part. Then all the little children take their parents and other grown-ups by the hand and bring them to share in the joy of Make-Believe for an afternoon or an evening.



SCENE FROM SUMMER PAGEANT GIVEN BY CHILDREN OF DETROIT

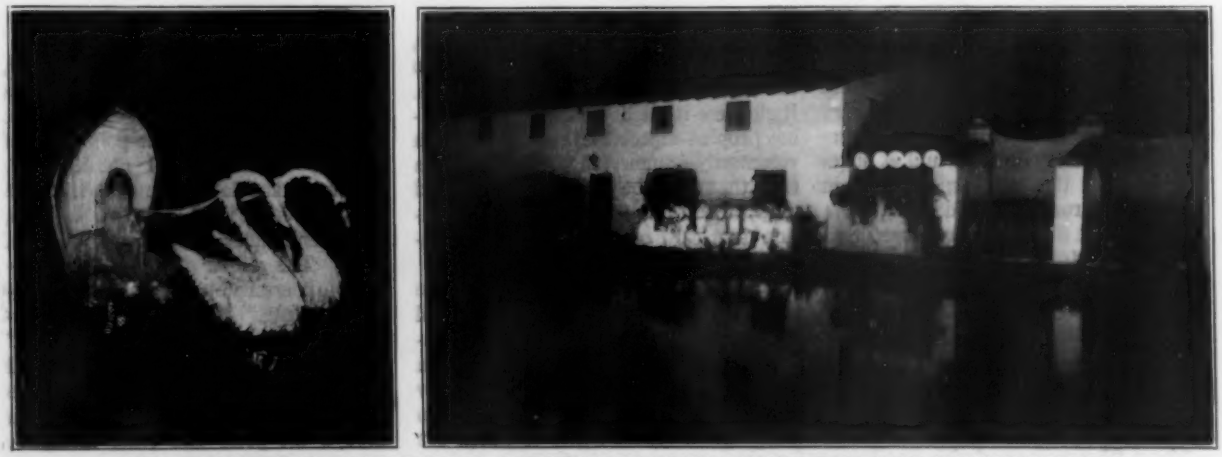
An important moment in "The Sleeping Princess" is depicted above. This particular pageant is typical of those staged each year at Belle Isle by all the playground children of Detroit

LITTLE DUTCH GIRLS IN MID-SUMMER CARNIVAL AT MEMPHIS

In that Tennessee city everyone from the toddler to the grey-haired grandparent is expected to participate in the dramatic programs of "Art and Drama Day," held annually on each of the twenty playgrounds

Such is the celebration held in the natural fairy glen in Lyndale Park, Minneapolis, annually; and it has to be given over and over so that everyone may see it. Last year, there were more than 50,000 spectators, and a larger number still are expected to be present this year.

Such is "The Enchanted Pool," given every year in Los Angeles with children from ten playgrounds taking part. It, too, has to be given more than once. It is a water pageant of exquisite beauty, the night-lighting making of the setting a fairyland entirely appropriate to the tale unfolded. It is the tale of a good fairy who comes nightly in her chariot with her court of small creatures for a carnival of fun and frolic at the Palace Pool. It tells of a precious bracelet



SCENES FROM THE WATER PAGEANT, "THE ENCHANTED POOL," PRESENTED BY LOS ANGELES CHILDREN

The beauty of this picturesque production is enhanced by extensive lighting effects which cast the spell of fairyland about it. Children from ten playgrounds participate in the pageant which centers about the pool fairy shown at the left

dropped in the water by the little Princess who lives in the Palace and how the fairy kept guard over it till the happy ending when, in the joyous and romantic way common to fairy tales, the young Prince came, recovered it and restored it to the little Princess. There is a delightful allegorical prologue enacted by the children, who take the roles of frogs, salamanders, fairies, and other denizens of Wonderland, and the whole spectacle is invested with the beauty and illusion which true artistry in production alone can create for both child actor and spectator. The completest attention of the entire Playground and Recreation Department is concentrated upon the creation of this spectacle anew each year. It is directed by Miss Emelie E. Hollington, Supervisor of the Dramatic Division.

"The Fairy Pool" is only one of the events on the dramatic calendar of the Los Angeles summer playgrounds. Bird and Tree Day was charmingly celebrated in April this year, and May Day a short time afterwards. "The Enchanted Pool" is presented each year in June. During July and August, vacation matinees are given on Tuesday and Thursday each week in the Little Lattice Playhouse, and on several playgrounds besides. A great many Los Angeles children look forward eagerly through the whole year for these performances, which are their favorite of all the playground entertainments. In September, there is a big spectacle pageant as a close to the outdoor play season. This year, this will be based on "The Magic Path," by Elizabeth Hanley, and is being elaborated with special dancing choruses and pantomimes, so that a large number of children will have parts.

Tracing People—Lost, Stolen, and Strayed Away

By JOHN C. RINEHART

ONE of the comparatively new, and certainly important, phases of police work in the large cities of the country is the tracing of people lost, stolen, and strayed away. Every year literally thousands of persons drop from sight of kith and kin—some voluntarily, some through no fault of their own—and in the majority of cases it is the police who are called upon to find them.

Exactly how large this multitude of missing is it is impossible to say. The vastness of the country makes anything like a grand total prohibitive. A glance at the annual reports of some of our metropolitan police bureaus, however, gives one at least an inkling of the situation. New York city, for instance, has approximately 10,000 persons reported missing every year! That means an average of 27 persons a day, or more than one every hour. Philadelphia reports 5,000 a year, or roughly, one every two hours; Chicago, 4,000; Cleveland, nearly 2,000; Los Angeles, 2,500; and other large cities, about the same average in proportion to their population.

So fast has this aspect of police work developed in the last few years that separate bureaus, called Missing Persons Bureaus or Details, have been created in many of the metropolitan police departments. Indeed, in some of these departments, it has become necessary to divide the work again into two sections—an adults' division and a juvenile division, the latter specializing in the cases of runaway children.

Of course it is not to be supposed that these missing folk are all Charley Rosses or Dorothy Arnolds. Many are accounted for very shortly after their disappearance, sometimes within a few hours; others take months and even years to locate. Yet there is a certain percentage whose whereabouts remain a mystery.

About 95 per cent of the people reported missing disappear intentionally, according to estimates of police officials. And of this number, a goodly portion are boys and girls under twenty-one. The lure of fame, love, the call of the wide open spaces, business and domestic troubles—these are but a few of the voluntary motives for leaving home. Of the involuntary causes, kidnapping, accident, and amnesia lead the list.

The Missing Persons Bureau at Work

The procedure for tracing this absent host is much the same in most of the Missing Persons Bureaus throughout the country. Let us suppose that Police Headquarters in Blanksburg receives word from the frantic relatives of Mary Smith that Mary has disappeared.

A description of the missing girl is immediately obtained, and this information is sent over the teletype to the various substations, where it is relayed to officers on beats. Photos are also secured if possible. A search of the city jails and hospitals is then made, for no possibilities are overlooked; and if these institutions fail to reveal the whereabouts of the wandering one, the newspapers and radio broadcasting stations are asked to announce the disappearance.

Should the quest still prove fruitless, that member of the Bureau detailed to the case begins looking about for clues. Right here it might be stated that missing people—especially those who vanish voluntarily—almost invariably leave a trail that can be followed. A word dropped to some friend, a written notation on a card or letter—these are usually sufficient to lead to an arrest.

Supposing Mary has done just these things—whispered a hint to some school chum; written an address on an envelope—and that these clues point to a distant city, Hollywood perhaps, or New York. Wires are immediately sent to that city asking the police to watch out for the runaway. If the wire is sent soon enough, Mary will probably have a reception at the railway station that is entirely unexpected. If not, rest assured she will eventually entertain callers from the police. Should clues indicate that Mary is hiding in her home city, the task of returning her to her family is of course simpler.

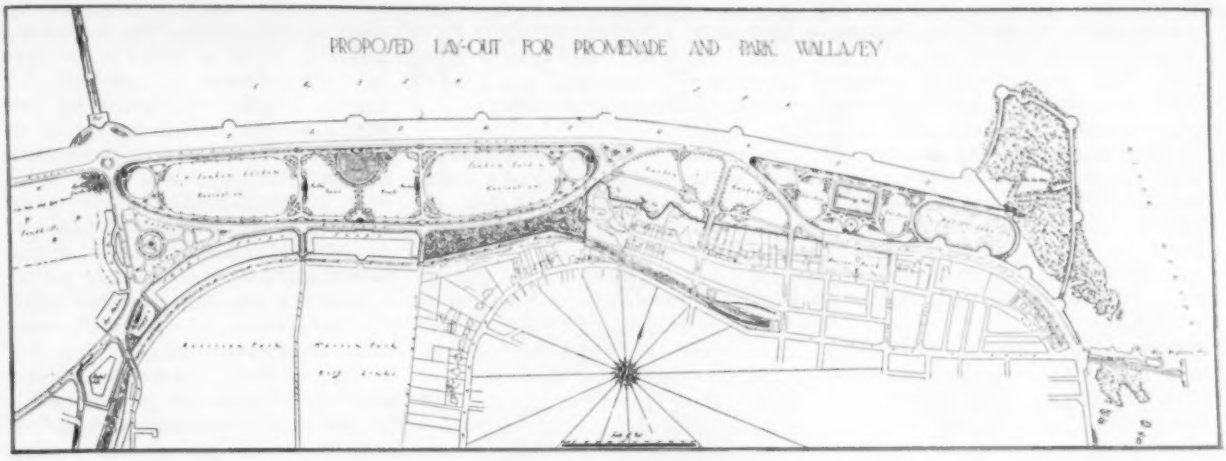
Ordinarily, such a program results in the location of the lost one, whether it take a day or a year. There are times, however, when all clues fail, and then the ominous word "Unsolved" is apt to appear on the docket.

In most bureaus the hypothetial case of Mary Smith would come under the Juvenile Division; and it is cited here because so large a percentage of runaways are minors. Adult cases, however, are handled in much the same manner, whatever the cause of disappearance—and, as a rule, are completed just as successfully.

Organizations such as the Traveler's Aid, the Juvenile Protective Association, and the city Mothers' Bureaus figure strongly in the task of apprehending people who have strayed from home, particularly very youthful or very elderly runaways. Indeed, in some cities, they constitute the Juvenile Division itself.

How the Public Can Help the Police

There is one other agency, however, that can aid the police very materially in clearing up missing person cases. That agency, a prominent police official declares, is the general public itself. Two recommendations are all that are needed to enlist its cooperation, he says, recommendations quite easily followed. First: The public should refuse absolutely all strangers who beg for autorides or "lifts." Second: It should report all youths and adults suspected of remaining away from home for no good purpose. If these two suggestions were "sold" to Mr. and Mrs. Good Citizen through the press and other mediums, says this official, the number of people listed as lost would be speedily reduced.

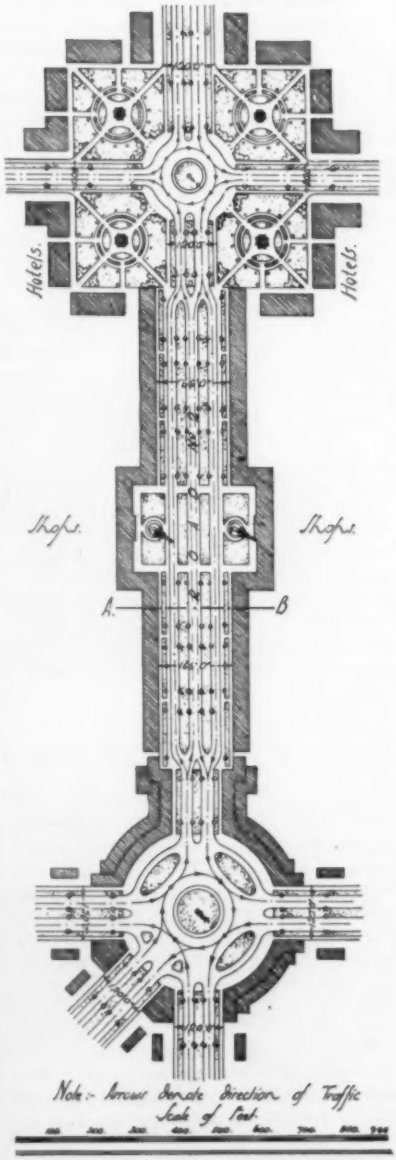


The English County Borough of Wallasey Looks Ahead

WHEN, at the end of 1927, enactment of the Wallasey Corporation Bill greatly enlarged the county borough of Wallasey by transferring to it a part of the rural district of Wirral, its Parliamentary Committee lost no time in setting afoot such a comprehensive and deliberate study of the new areas as would provide a basis for a future development policy. Reginald Bruce, A.R.I.B.A., M.T.P.I., whose name is prominently connected with some of England's notable town planning schemes, and who is the Hon. Editor of the *Town Planning Institute Journal*, was engaged to make the survey and to submit, in broad outline, such planning proposals as would meet certain requirements laid down. Mr. Bruce's report, as approved by the Co-ordination Sub-Committee on Town Planning, and by the Parliamentary Committee by which it has been recommended for adoption to the County Borough Council, is now issued in handsomely printed form, illustrated by maps, charts, and plans.

In his introduction, Mr. Bruce points out that ". . . the predominant factor, whether it be industrial or residential, constitutes the chief character motif, and the prosperity of a town largely depends upon the extent to which the general development harmonizes with that motif." Once the characteristic motif of the district is determined, he adds, the future can be very largely visualized, and the scheme developed.

The character of the areas under examination, having been determined as predominantly residential, and as appropriate for extensive future development along health and resort lines, the report proceeds to the matter of zoning and provisions for the predominant use districts appropriate to development as predetermined.



Forethought in Planning Shopping Areas

One section under this head is devoted to a subject which has recently claimed, increasingly, the attention of American city planners — efficiently developed shopping and business centers. Of these, Mr. Bruce says:

"In economic planning, it is a principle that buildings in connection with shopping and business should be concentrated, and that definite areas be allocated to those uses. In a district which grows promiscuously, it frequently happens that considerable areas of land become developed without any thought having been given to the need for shops and business premises, and subsequently odd corner plots or other small vacant pieces of land are taken over as sites for isolated emporiums, or a private house here and there becomes converted into a similar kind of store. The result is that the surrounding property and the amenities of a district as a whole are often detrimentally affected."

The concentration of shops into definite shopping areas, Mr. Bruce points out, adds to the convenience of daily shoppers and of the wholesale firms that deliver goods. Such areas should be discriminately placed, where they will be easy of access, close to ordinary traffic and bus routes, and within a distance of half a mile of any part of the residential area. They should not ordinarily be placed upon main road intersections, where they congest traffic and create dangers for pedestrians. The second of the two principal shopping areas proposed in the development scheme is illustrated herewith, in its proposed location halfway between the village of Wallasey and the village of Moreton. In general, the proposal here is that at the junction of the main east-and-west road and other important roads would be placed

such buildings as concert halls, theaters, and cinemas, and other public and semi-public buildings. From this center and along the proposed road northward would be good-class shops facing a well-planted road having one main center roadway and a shopping road on each side. At the junction of this road with the Leasowe Road, gardens would be provided, and to the north of Leasowe Road and along the road leading to the sea there would be hotels, boarding-houses, and other residential buildings.

Whatever positions are chosen for shopping centers, Mr. Bruce lays down as a general principle for the control of such development, that special attention should be given to the amount of space in front of the shops. Wide sidewalks should be provided, and, if possible, the curb line should be set back sufficiently to enable "docks" to be formed into which vehicles can be drawn in order that they shall not interfere with the general flow of traffic.

Appropriate Waterfront Development

Since the chief attraction of a seaside health resort section is, naturally, the waterfront together with the facilities provided for the enjoyment of pleasures usually associated with the sea and the foreshore, great emphasis is placed in this report upon appropriate waterfront development. The 4½ miles of seafront from New Brighton to the western extremity of the borough has accordingly been provided for in one harmonious scheme; with many constituent elements and great variety in its attraction. As shown in the sketch, a promenade extends the full distance, with a suggested minimum width of 220 feet, to have appropriate shelters, parapets, and other features designed with thought for their artistic as well as their utilitarian aspects. Subdivision of the promenade is suggested, with provision for a broad walk, including gardens, of about 160 feet, a roadway of about 40 feet, and an additional pathway inside, the scheme to be varied for variety's sake.

Admirable suggestions are laid down for the provision of "seasonal" shops to be incorporated properly into the planning scheme of the promenade, and appearing as delightful and interesting features of the development instead of being the eyesores such places too often are.

Taxation System Furthers Disorderly and Wasteful City Development

VERY few people ever take into consideration the enormous economic loss and waste involved in the immense amount of valuable land, both urban and suburban, that is held out of use for speculative purposes or driven out of use, on the one hand by heavy taxes imposed upon improvements, and on the other hand by the generous reward that is oftentimes paid to idleness through holding valuable land out of use for speculative purposes.

Every man who has a vacant lot hopes, when he sells, to get back not only his original payment, but the taxes that he has paid, and he hopes also to compound the interest on the original cost to him of the lot. During the time he held the lot idle he still received from the town whatever social service the town had to offer him, the amount of this depending upon the location of his lot. He had the street and the lights and the sewers and the fire department and the schools and all the other social services of the town that really gave his lot a site value. While he did not use them, he was free to use them. A man should pay for what he gets, whether he uses it or not—and he does pay in every department of life's activities, except in the tax department.

No one would ever think of treating real capital in this fashion. Take a machine, for instance; if you let it remain idle for years and had an opportunity to sell it, you would never dream of compounding interest and adding whatever taxes might have been paid upon it during its years of idleness. The fact is, no one would consider getting even the original cost of the machine.

In other words, there can be no payment collected on any form of real capital that has been idle. Capital, to get a return, must be actively engaged in production. It is only upon idle land, the source of all production, that we have dropped into this erroneous and vicious practice, through our faulty system of taxation.

A lot in a city that has a selling value of $100,000, that is held idle for speculative purposes, means a loss of at least $5,000 a year. Besides this, valuable idle land forces capital to go farther away from the center of things for the land it must have in order to carry on business of any kind, and put up with the inconvenience and the cost arising from the greater distance from the center of human activities represented in that municipality.

Another great loss is the tremendous increase in the city budget—the cost of maintaining public utilities such as streets and lights and sewers, fire department, police department, past these vacant lots, out to the city line. I doubt if there is a city in the United States where one-half of the area is anything like fully used. This means a doubling of the budget, for the cost of maintaining city utilities is determined more by the superficial area to be served than anything else. No sane man if he had a large mill with a number of units would arrange his buildings and his equipment in such a crazy fashion as we do in our cities. He would arrange all his buildings in the most economical and efficient fashion, neither overcrowding nor scattering them too widely—both of which would interfere with efficiency.

Now, this chaotic and disorderly arrangement of our cities is due to a chaotic and disorderly system of taxation that actually pays men to hold land idle and heavily fines those who use it to its full capacity. We need offer in evidence no greater proof of the stupidity of our present system of taxation than the disorderly, chaotic, unsymmetrical and costly manner in which our cities are built.

JAMES R. BROWN.

More Airplanes Today Than Automobiles in 1900

THE latest figures indicate that there are more airplanes in civilian operation in the United States today than there were automobiles in use in 1900. According to the Air Travel Division of the American Automobile Association, there were only 8,000 automobiles in use in 1900, and all of these were passenger cars, while available figures show that there are 8,064 civilian planes now in service. These are used for passenger-carrying, transportation of mail, forestry patrol duty and for carrying freight. The A.A.A. adds:

"Although the airplane has been steadily gaining a foothold in the field of travel for the past 20 years, it remained for the flight of Colonel Lindbergh, early in 1926, to awaken America to the growing importance of aviation. This is shown by the fact that there were about 2,700 planes in civilian operation at that time. A 200 per cent increase in number within the brief space of two years clearly shows that the eyes of the American people are toward the skies.

"America is no longer content to travel entirely by train or automobile. With that spirit of adventure always characteristic of the United States, the modern tourist travels by land, by air and by water. He ships his car to Europe and uses it there. He starts for the Pacific Coast and travels by train, aeroplane and automobile. A.A.A. motor clubs have, therefore, been quick to adapt their services to modern means.

"Throughout the country these agencies of travel have joined forces with municipalities and civic agencies in promoting airports; air maps are furnished the traveler, transportation by plane is arranged and tickets handled. They, as much as any other agencies in the country, have foreseen the future of air transportation and are aiding in its progress."

Remodeling a Sewage-Treatment Plant in Houston, Texas

By THOMAS N. HILDRETH

WITH the rapid growth of many municipalities has come the need for remodeling and enlarging public utilities, and, of special importance, the enlargement of sewage-disposal plants.

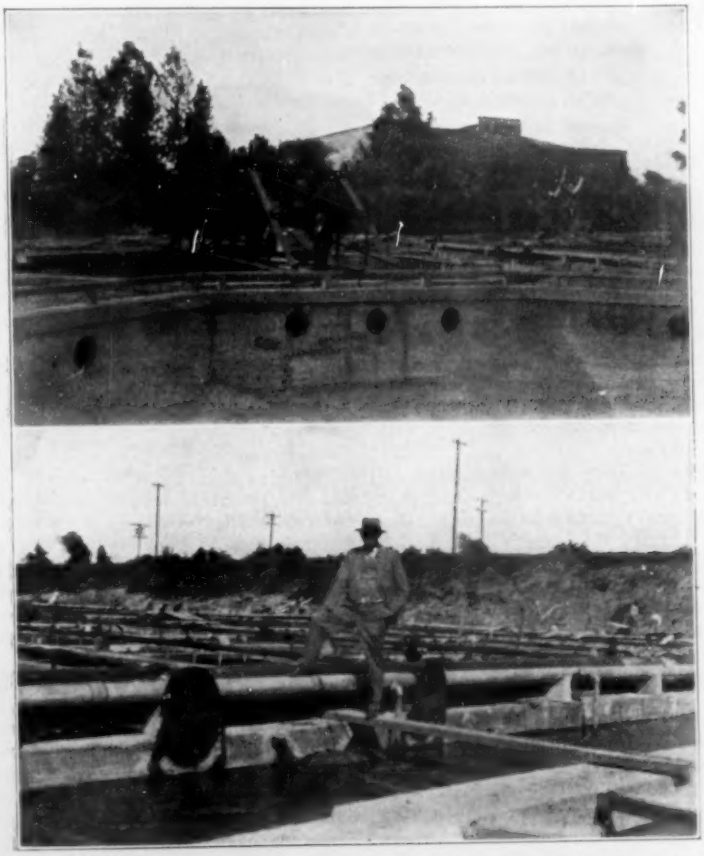
The North Side sewage treatment plant of the city of Houston, Texas, when constructed in 1916 and 1917, consisted of one aerating channel 18 feet wide by 280 feet long, ten settling tanks 10 feet x 18 feet 10 inches by 22 feet deep, with a sloping bottom and sludge air-lift discharge pipes, and one reaeration channel 9 feet wide by 280 feet long. The depth of flow over the filtros plates in all the aerating channels is 9.75 feet; the area of aerating channels per unit, 5,020 square feet; reaerating channels per unit, 2,510 square feet; settling tanks, 1,733 square feet; and number of filtros plates per unit, 1,050. The ratio of filtros plate area to surface is 1:7.

AUTOMATIC GATES EMPLOYED IN SEWAGE DISTRIBUTION AT THE HOUSTON PLANT

Enlarging the Plant

Recently this plant has been brought up to date by some very worth-while changes. A new aerating unit consists of two tanks, one being 18 feet wide by 386 feet long and the other 9 feet wide by 386 feet long. The work was done under the direction of J. C. McVea, City Engineer, and G. L. Fugate, Assistant City Engineer.

In every possible manner economy was the watchword. Additional aeration surface area was provided by converting the old settling tanks into aeration tanks. Four 65-foot reinforced concrete octagonal settling tanks equipped with Butchart sludge thickeners replaced the forty old settling tanks.



VIEWS OF HOUSTON'S REMODELED SEWAGE-TREATMENT PLANT

Method of Aeration

Of particular importance was the method of handling the sewage. The sewage is distributed to the aeration tanks through 24-inch Calco gates that operate automatically. They allow the material to pass away into the next compartment, but do not allow it to return. The sludge that is returned to the tanks is admitted through hand-operated Calco gates. There were 49 of the automatic and 10 slide gates employed in this improved plant. Air is diffused through the sewage by the use of filtros plates. In the old units the filtros plates are set in concrete holders with the top of the plate flush with the floor, but in the new units the plates are set in concrete holders with the top of the plates projecting one inch above the floor level. By this method the plates can be cleaned more easily. Lamp wicking and cement mortar hold the plates in position.

Air is supplied to the plates by means of welded galvanized pipes, a ¾-inch needle valve controlling every six plates. A 12-inch Crane hand valve was installed in each tank to eliminate the possibility of having to pump should it

INLET END OF ONE OF THE CONDUITS, THE OUTLETS OF WHICH ARE PROTECTED BY CAST IRON AUTOMATIC GATES

become necessary to repair or clean the plates.

Further Course of Sewage

From the aeration tanks, the sewage enters reinforced concrete distribution channels equipped with filtros plates to prevent the floc from settling out before reaching the settling tanks. The completely aerated sewage is then distributed to the reinforced concrete settling tanks through 24-inch Calco automatic gates. Wooden collecting weirs care for the effluent from the tanks. From the collecting weirs, the effluent flows through concrete channels to a central channel where it is recorded by means of a Bristol flow meter.

Only a portion of the 65-foot octagonal settling tanks are equipped with Burchart sludge thickeners. These thickeners consist of a double spiral made of plow steel, hung on a light truss that spans the tank. A small electric motor reduced by a speed reducer pulls the scraper.

Present Capacity of Plant

The following will give an idea of the capacity of the sewage disposal plant as it now stands:

	Gallons	Sq. Feet
Aerating tanks	2,350,000	32,700
Settling tanks (converted aeration tanks)	550,000	7,540
New 9-foot aeration tank	246,000	3,470
New 18-foot aeration tank	500,000	6,940
Collecting channels	83,750	1,225
164,000 gallons not considered in aeration capacity	....	2,245
Total	3,729,750	54,120

Settled sludge is drawn from the tank by means of an eight-inch Wood trash pump, connected directly to a variable-speed Westinghouse motor housed in a reinforced concrete and brick building. A 16-inch cast iron pipe line carries the discharge from the pump to a central distribution pit. Approximately 28 per cent of this sludge is then returned to the plant and the excess sludge either made into commercial fertilizer or pumped into earthen lagoons.

The average flow contemplated for the plant is 12,500 gallons per day.

Model Arson Law Now Prevails in 27 States

THE model arson law which is advocated by leading fire-prevention agencies is now in effect in 27 states, the National Fire Prevention Association reports.

The following 12 states, situated in various parts of the country, have enacted the measure this year: Arkansas, California, Delaware, Illinois, Maryland, Missouri, North Dakota, Ohio, Pennsylvania, South Dakota, West Virginia and Wisconsin.

Time Limits on Parking in New York State Cities

ALL but 14 of 67 cities, towns and villages in New York State which responded to a recent inquiry of the State Bureau of Municipal Information, report that they limit the time during which automobiles may park in congested districts.

The time limit in thirty of the places is 1 hour; in nine, 30 minutes; in eight, 2 hours; and in the others it ranges from 15 and 30 minutes to 1 and 2 hours, according to the congestion prevailing in the particular district. Auburn and Valley Stream replied that parking is not permitted at all in certain sections of the municipality.

Nine of the 53 communities having a time limit on parking admit that it is not strictly enforced by the police department, while several stated that the police are lenient with visitors and tourists. Communities where there are no time limits on parking in congested areas are Cortland, Long Beach, Norwich, Ogdensburg, Salamanca, Albion, Depew, East Rochester, Herkimer, Hudson Falls, Lancaster, North Tarrytown, Solvay and Walden. An "honor parking system" is in vogue in Cortland, where it evidently is up to the motorist to formulate and observe his own parking time limits.

Twelve cities declare that they have difficulty in enforcing these parking time limits, while 39 reported that they have no or very little trouble. Beacon and Kingston find that the time-limit policy requires constant police supervision to make it effective, while Saranac Lake experiences most of its difficulty with local motorists.

Practically all of the communities included in the survey report that their time limits on parking have proved successful. Among the benefits derived from limiting parking in the congested business districts are: less congestion; available space of tourists to park; accommodations for motoring customers to park in vicinity of stores, resulting in a stimulation of local trade; and a sharp reduction in all-day parking in front of shops by merchants and their employees.

Ithaca offers a typical reply:

"From a survey of the parking situation in the congested area, it was found that violations by persons who park to do shopping are very few. The greatest problem has been with the merchants, lawyers, stenographers, clerks and the professional class in general, who are always using the streets for parking as long as they wished. This situation has been practically corrected through the cooperation of various civic organizations, and ample parking space is usually available now for the shopper who wishes to stop for just a short period while making a purchase."

Amsterdam, however, takes an entirely different view of the situation and finds that "merchants complain that enforcement of parking time limits hurts business and drives trade away." That city also reports that this condition is often aggravated by some local official interfering and resultant corruption among police officials attempting to perform their duties in this connection.

Catskill finds a two-hour time limit is too long, while Mamaroneck says the system there is not successful because it is not enforced. In several cities, parking spaces have been established on vacant property near the congested aeras, relieving congestion still further and encouraging the strict observance of the time limits.

Making the County Automobile Run

By HOWARD P. JONES
PUBLIC RELATIONS SECRETARY, NATIONAL MUNICIPAL LEAGUE

"COUNTY government is trying to handle 1929 business with a 1900 model. . . ."

It was Governor John Hamill of Iowa speaking. In his message to the State Legislature on January 17 last, he put into crisp official words a demand for change that has been straining to catch the public eye ever since the germ of reform began to spread among American cities, stimulated by flooded Galveston in 1900.

The Governor might have put the model of his county vehicle much farther back; back, indeed, to days before the automobile had been dreamed of. He might have referred to stage coach government, or have pointed out, as did Alfred E. Smith to the New York Legislature in 1926, that local rural government had undergone practically no change since one hundred years before the Revolution! Although, of course, he would have been exaggerating a bit, had he applied the latter remark to Iowa, since at that time, the great corn state was but Indian-roamed prairie.

Yet figuratively and fundamentally, he would not have been much out of the way, since county government bears a relation to its administrative problems similar to that of the "old mill stream" of yesterday to the complicated power problems of today. We might as well expect the picturesque red mill to satisfy the demands of modern industry as to hope for the county to satisfy the local governmental requirements of a fierce machine civilization. We are quite willing to grant the picturesqueness of the county; we are quite ready to admit that it has a certain historical charm in carrying us instantly back to the days of Peter Stuyvesant or Stonewall Jackson, as the case may be, but we maintain that its place is in an historical collection with the rest of the relics. Teams of oxen no longer trudge down Broadway, but their yokes, well worn by shoulder rubbing, are displayed in the Metropolitan Museum.

The City and the County as Objects of Governmental Improvement

It is not strange that little has been done by way of improvement in county affairs. Human nature almost invariably takes the simpler of two tasks at hand, particularly when the simpler is the more pressing. Thus much has been accomplished for the American city. The justly famed manager plan has been adopted to date by 407 municipalities, which are showing results in two desirable if apparently opposite directions: on the one hand toward greater democracy, and on the other toward greater efficiency of public service.

But the county! In 1917, H. S. Gilbertson in his book, "The County, the Dark Continent of American Politics," pointed out that "no political scientist has ever had the ambition to plow into the soil, so that while there is now available a 500-page bibliography of city government, there has never been written a single volume devoted exclusively to counties." This, of course, is no longer true. Yeoman service has been done by the New York Bureau of Municipal Research, by Richard S. Childs, by Professor Kirk H. Porter of the University of Iowa, by Professor Paul W. Wager of the University of North Carolina, by Gilbertson, Professor John A. Fairlie, of the University of Illinois, and a few others. The laboratories of the social scientists, however, are just beginning to divulge the inadequacy of the present county system and to experiment with a new type of government.

To condemn a process as inadequate is simple; to prove it inadequate is somewhat more difficult; to find a remedy for that inadequacy and, above all, to apply it, once found, is the final step in solving the problem.

Main Drive Shaft Missing

The first two steps have been taken by sure-footed investigators. We may not know all the faults of the present county machinery; but we know that not only do the spark plugs need cleaning, the carburetor need adjusting, the bearings need replacing, but the main drive shaft is completely missing. The result is that while the various parts may be all right in and of themselves, there exists no coordination. Without coordination, the machine may make a lot of noise, but it will never go anywhere.

Which brings us to the problem of how to make the car go. It is one thing to have an automobile that won't run, to discover that a drive shaft will make it run, and to get the drive shaft. Little or no knowledge of mechanics is required, up to that point. But it is another thing altogether to put in that drive shaft and adjust each part of the motor in such a way that the movement of the shaft synchronizes perfectly and actually enables the car to move through direction of the other parts.

This is the problem faced by the reformer of county government. The majority of thinkers on this subject believe that they have discovered the drive shaft in the form of a county manager. A directing head, who could coordinate the work of all the county officers and see that the government functioned effectively and efficiently, would not only live up to 1929 standards, but would actually save the taxpayers much money and also provide greater democracy, they insist.

Indeed, in the matter of savings, the New York Bureau of Municipal Research, in its report in 1927 on county government in Virginia, stated figures courageously. "It is estimated," the Bureau asserted, "that a possible annual saving in the operating cost of the county governments of at least $1,500,000 can be made to the taxpayers of Virginia if the recommendations contained in this report are carried out."

These recommendations covered such subjects as: general plan of organization of county government; financial officers and their functions; accounting system; tax-collecting procedure; functions of the clerk; abolition of the fee system; administration of justice; local health work and welfare; county highway administration; and public school administration.

And the same year, Professor Paul W.

The County Manager as Drive Shaft

After he has been found and is ready to be put in place, how can he be sure that the mechanism he is to control has been adjusted to his direction?

If, by constitutional amendment and adequate legislation, bewildering non-essential elective offices have been cut out and a board of county supervisors, responsible to the people, have been elected to determine the direction and extent of county activities, the county manager whom they hire can make things move. This has been done in North Carolina and in Virginia. Read this article and find out how Davidson County, North Carolina, raised its credit rating from C to A.

But how about the hundreds of counties that are stalled with all the road signs down?

Wager had this to say of county government in North Carolina:

"North Carolina has one hundred counties, and in the last five years they have expended $240,000,000. These huge expenditures have been made, for the most part, by untrained officers, without unified fiscal control, and without systematic accounting. In other words, county government in North Carolina, as elsewhere, has rapidly grown into a business of gigantic proportions, yet it has tried to operate with the same machine and the same organization as was set up in colonial days. Indeed some of our county offices and county government practices originated as far back as the time of William the Conqueror."

Adjustments Needed—Organization, Human, Legal

It is no simple task, however, to install a county manager. As each part of the motor car has to be adjusted to the drive shaft, so each office of the county has to be adjusted to the direction of the county manager. There is not only the actual organization problem of readjustment, and the human factor; there is the legal problem. Our mechanical analogy would be more complete, in fact, were we to assume the existence of a provision in the state constitution for the operation of a motor car without a drive shaft, and, in addition, state statutes specifying the precise operation of each part of the car, so as to prevent the installation of a drive shaft. Before we may install the shaft we have available, then, state constitutions must be amended and state statutes altered. As Richard S. Childs has said:

"Every time one county official is impolite to some other county official, somebody takes the train to the capital and a new law is passed to rectify the difficulty. . . . This endless legislative tinkering, even if it were always sincerely done, serves its temporary purpose, remains unrepealed and forgotten on the statute-books, and becomes a permanent nuisance. . . . A county official is lucky if he has a really clear idea of what his own duties are."

The county manager plan, it is asserted, would remedy all that. Analogous to the city manager plan, it would be based on a short ballot, which would wipe out the myriad of unimportant elective officers now existent in the county. The county board of commissioners, or supervisors, would be equivalent to the city council under the city manager plan—a board of directors determining policy, but hiring a manager to run the business. The members of the board, of course, would be elective. The people could hold them directly responsible. The manager, hired by the board, would stand or fall on his record. He would employ all subordinate officials and direct the actual work of administration. If he handled his job well, if the work of the county were efficiently administered, he would be retained; if not, he would be dismissed, and another manager employed.

For years, under the urge of progressive thinkers, various states and counties have been leaning toward the scheme. As long ago as 1913, Rockingham County in North Carolina had a Chairman of the Board of Commissioners who acted as a manager. A few other counties in North Carolina followed suit, with some variations.

North Carolina, it should be said, by a constitutional amendment in 1875, authorized the General Assembly to alter or abolish, at its will, most of the provisions touching the county organization. This authority, however, did not extend over the court officers; hence, the sheriff, clerk of the court and coroner are still fortified by the constitution.*

Nebraska and Louisiana are the only states in the union which have no constitutional provision regarding county government, and in which change is simply a matter of legislation. It was necessary, then, for county manager enthusiasts in other states to amend constitutions prior to obtaining constructive legislation. This was done in California in 1911, Maryland in 1916, Montana in 1922, and Virginia in 1928.

The First Real Test of the County Manager Plan

Despite these progressive steps, however, no attempts to get a real county manager succeeded, although several efforts were made in these states. It was not until North Carolina, in 1927, passed legislation looking toward the improvement of county government, and permitting the board of commissioners to employ a county manager, that a real test of the plan was made.

North Carolina's experience was the first blow on a wedge that seems likely to be driven deeper and deeper. Virginia followed with a second smashing stroke. Reports from counties of both states which have adopted the plan indicate success. Costs of government have been lowered, businesslike methods have been introduced, greater public service rendered.

While figures do not tell the whole story, it is worth noting that the tax rate in Davidson County, which was $1.25 per $100 valuation under the old system, was lowered under the County Manager to $1.20 in 1927 and to $1.17 in 1928. This reduction was accomplished by cutting the unit costs. Its significance may be further appreciated when it is known that Davidson County's indebtedness was reduced in the same period to $100,000. This, combined with prompt meeting of obligations, resulted in the county's credit rating being raised from C to A.

Similar were the experiences of other counties. Although Wylie Kilpatrick, Associate Research Professor of the University of Virginia, has some doubts as to whether the county manager plan is practical when carried to its nth degree, his investigations in counties where the managerial principle was applied show striking progress.*

Nine counties to date, six in North Carolina and three in Virginia, have adopted the county manager plan in various modified forms. They are:

Davidson County, N. C.
Wilson County, N. C.
Edgecombe County, N. C.
Guilford County, N. C.
Alamance County, N. C.
Mecklenburg County, N. C.
Augusta County, Va.
Pittsylvania County, Va.
Arlington County, Va.

In each instance, Professor Kilpatrick finds greater efficiency in administration has resulted, and in a majority of cases unit costs of government have been reduced. While space is lacking here to analyze these results in detail, it should be worth while to glance briefly at the experience of Augusta County, Va., which has been operating under the manager plan since April, 1927, when Fred T. Prufer, long clerk of the board of supervisors, was given new powers and became "virtually an executive clerk or agent of the board."

While Mr. Prufer's powers do not reach to authority over elective officials, he is in a position to correlate their work. Through a complete financial statement submitted monthly to the board, active administration of debts, and a thoroughgoing budget, he is able to provide a centralized financial control never before realized.

But results rather than methods are what count. The county has regularly borrowed money at 4¾% while its sinking funds are earning 6%. At the end of the second year of manager-clerk regime, all debt had been wiped out except long-term bonds for the repayment of which provision was definite. "During his first fiscal year, 1927-1928, the debt was reduced $57,665 in addition to the increase of the sinking fund. During the present year, a county debt of $18,600 has been absorbed, $20,000 road notes paid off, and three minor obligations redeemed. And the debts were retired, it is significant to note, in the year following a decrease in the county and road tax rates that lowered taxes in all of the seven districts of the county!"*

* County Government and Administration in North Carolina.—Paul W. Wager.

* County Management: A Review of Developing Plans of County Administration in Virginia and North Carolina. University of Virginia, 1929.

From 1923-4 to 1926-7, county expenditures jumped from $550,579 to $737,916. From this point they dropped gradually to $612,482 in 1929-30. Thus good management, among other improvements, actually saved the county $125,334 in a three-year period when local governmental costs generally throughout the country were increasing!

In a word, it looks as though the drive shaft had been found, and successfully attached to the machine. There are, however, more than 3,000 counties in the United States, and repairs have been made on but a handful. The rest stand stock still, making much racket, but not a wheel turns.

Just how long Mr. and Mrs. O'Grady will consent to ride in the back seat of a vehicle that, no matter how vigorously it puffs and snorts, budges not one inch, is open to question. Perhaps after all, they prefer their scenery "quiet." However, there are optimists who rely on Rosie's being somewhat perturbed when it is pointed out to her that "the Colonel's lady" is merrily driving along the boulevard.

EDITORIAL NOTE.—In the January, 1929, *National Municipal Review* the pro and con of the county manager form of government are presented respectively by Professor Paul W. Wager and Professor Kirk H. Porter. The former describes the Davidson County plan and the improvements in administration which it brought about in one year. In THE AMERICAN CITY for September, 1929, pages 160-161, is an article entitled, "Needed for Every County—," this being an excerpt from Professor Wager's previously mentioned book.

On page 98 of the February, 1929, issue of THE AMERICAN CITY, there is an abstract of an article by John Manning, of Vanderbilt University, on the reduction of the number of counties in Tennessee to lower government costs. Our readers are also referred to the chart on page 125 of THE AMERICAN CITY for May, 1928, entitled "The Need for Simplified County Government Graphically Presented," and referring to Wayne County, Mich.

Why Not Make Motor Travel as Stimulating to the Eye as It Is to the Speedometer?

ROAD building, in recent years, has assumed the proportions of a major industry . . . but it cannot yet claim, in any broad sense, to be numbered among the fine arts. We are still in the grip of the past and think of highways as purely utilitarian devices whose sole function is to enable us to get from place to place in the shortest possible time. . . .

We sally forth in quest of charm, restfulness and beauty, and presently find ourselves upon a hard, smooth ribbon of concrete or cement, straight as the ruler which laid it out. Ahead, we see nothing but the slowly converging, straight lines of the roadsides, which are finally lost at a hazy vanishing point. If we look a little to right or left, billboards come within the field of vision. We lose all sense of being in the open, for our setting has made us a part of a diagram illustrative of simple perspective. We have, to be sure, the road surface we paid for, but we have been cheated out of all the charm and beauty we might have had along with it, had there been proper tree planting and an easily arranged succession of pleasant prospects. . . .

America is raising the level of her civilization by leaps and starts. She is discovering, as at no time in the past, the value of beauty, not only as a commercial asset but as a sweetener of life and as a luxury without which life is never what it might be. In a score of ways civic beauty is becoming an issue, and each community must decide for itself whether it wants it, whether it deserves it, whether it is willing to pay a little extra to get it. Cities and towns which have fostered it know how many times over it pays for itself in heightened self-respect, in local pride, in attractiveness to strangers and in rising property values. . . .

It would be hard to find any valid reason why we should not think about beauty when laying out our highways, why we should not in this way strive to make motor travel as stimulating to the eye as it is to the speedometer. Long before we wear out the roads we are now constructing, the demand for outdoor beauty will be far more general and insistent than it is today; and if these roads are stark and ugly, they will not be so leniently judged ten years hence as they are at present, when we are only beginning to perceive their drab, unimaginative monotony.

We believe that it would be well worth while to make a frank and open cash concession to beauty. Let our highway engineers have the assistance of qualified landscape architects who shall be permitted to modify ugly straight-line gashes through hill and valley within prescribed limits of additional mileage and additional cost of construction and right-of-way. Dollar for dollar, we should get more for our money put into this overplus than for that expended upon the straightest and ugliest highway conceivable. Legislators and state and county officials will presently wake up to this rather obvious fact and will usher us into a new and happier era of highway construction.

—From a recent editorial in *The Saturday Evening Post*.

Cargill in Evansville Courier

"TO HIM WHO IN THE LOVE OF NATURE HOLDS COMMUNION WITH HER VISIBLE FORMS, SHE SPEAKS A VARIOUS LANGUAGE."—WILLIAM CULLEN BRYANT

San Francisco Studies the "Through" Street and "Stop" Sign Problem

By GEORGE D. BURR, CITY TRAFFIC ENGINEER
Under the Direction of M. M. SHAUGHNESSY, *City Engineer, San Francisco, Calif.*

ARTERIAL or through-traffic streets have been established quite generally throughout American cities. The normal function of such regulation is to allow rapid vehicular transportation between separate districts of a city, or along the principal highways running through a town. The legal rule adopted with the object of accomplishing this result is to require all vehicles to stop at or near the property line of the arterial street before entering it, thus permitting rapid but safe movement along the through street.

The effectiveness of such regulation is dependent on four factors: first, ability to get the entering traffic to stop; second, volume of traffic along the arterial street as compared with traffic across it; third, selection of streets that, owing to character of line, grade, surfacing, and approaches, are capable of passing a large volume of rapidly moving vehicles; and fourth, the effective policing of the street to maintain proper order and to prevent dangerous speeding. The solution of the first factor forms the subject matter of this article.

The Hazards of Through Streets

The arterial stop rule is not a safety measure. It always, by its very nature, introduces an element of hazard from two sources. It encourages fast driving on main highways, with attendant danger from more serious accidents. Collision with a vehicle moving at a high velocity creates greater damage than that occasioned by impact of the same vehicle moving more slowly. It also creates a hazard by the very existence of the regulation, as the driver along the through street relies on approaching vehicles coming to a halt before crossing his path. When such entering vehicles are not brought to a stop, one of the most serious sources of accidents is maintained. It may therefore be seen that if the arterial stop rule is employed it must be rigidly enforced in order to prevent accidents. Without such rigid enforcement, it would probably be better to abandon the use of through traffic streets.

The means generally employed to bring approaching vehicles to a halt is the erection of a post-mounted sign, bearing the word "STOP," at the right-hand curb at about the property line of the through street. In fact, the Model Traffic Ordinance, recommended by the National Conference on Street and Highway Safety, as well as the San Francisco ordinance, states that "no provision of this ordinance for which signs are required shall be enforceable against the alleged violator, if, at the time and place of the alleged violation, the sign herein required is not in proper position and legible enough to be seen by an ordinarily observant person." A line or mark on the pavement, extending out from the stop sign, designating the exact point at which the vehicle is to be stopped, is a material help. Although buttons and other forms of marking on the pavement surface are used in some localities to indicate the point at which the vehicle shall stop, their general use is not to be looked for.

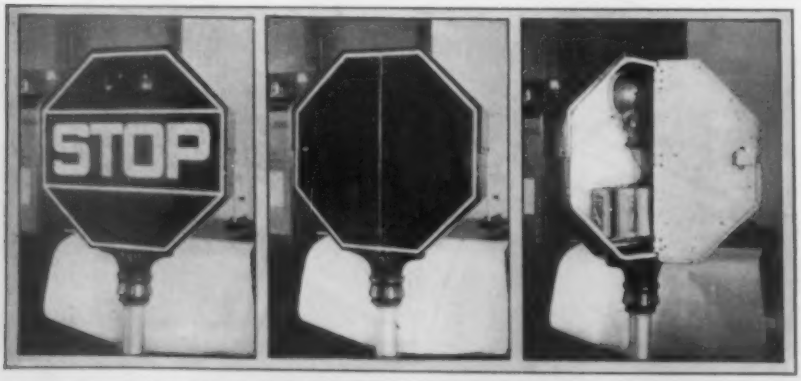
To be effective, signing standards must be national in their character, so that a man driving in Chicago may find the same type sign meaning the same thing as in New York, Seattle, or San Francisco.

BATTERY-TYPE ARTERIAL STOP SIGN ON BAY SHORE BOULEVARD IN SAN FRANCISCO
Note the entrances to a pedestrian subway running under the 100-foot roadway

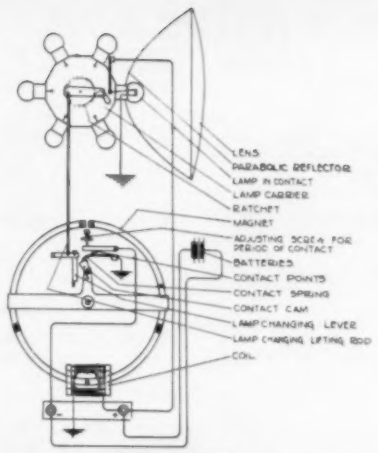
Painting on the pavement surface has the disadvantage of being often obscured by glare when the pavement is wet, and being very difficult to see at night. Buttons on the street surface, although effective in some cities, are often covered with snow during the winter in other cities. Therefore, they can hardly be adopted as a national standard to indicate the stop regulation. Hence, in San Francisco, we have adopted the national standard stop sign, except for the color, which is defined by the California state law, to mark our arterial streets. The sign is erected at the point at which it is to be obeyed.

"Stop" Signs by Day and Night

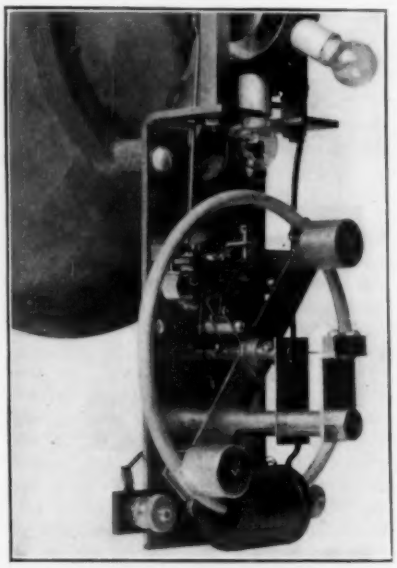
The type of sign for daylight use is well defined by the national standard signing practice recommended by the American Engineering Council. A great amount of experience has been had in San Francisco with such signs and the reaction of the public to them in daylight is well understood. There are only a few wilful violators of the stop signs, amounting to about from 1 to 1½ per cent of the driving public. The remaining violations are caused largely by lack of attention, resulting in failure to see the sign; and by complicated traffic situations, which keep the driver's attention at other points than



FRONT, BACK, AND INTERIOR VIEW OF BATTERY-TYPE SIGN



WIRING DIAGRAM
WALLACE & TIERNAN DRY BATTERY OPERATED FLASHER WITH AUTOMATIC LAMP CHANGER



MECHANISM OF THE BATTERY-TYPE SIGN

on possible sign locations, or perhaps temporarily obscuring the sign. This caused from 10 to 35 per cent of the drivers passing stop signs to run by or fail to come to a complete halt.

However, the reaction of the public to night illumination of signs was not so well understood. Ordinance provisions, as pointed out above, make stop sign regulations practically void at night, unless the sign is illuminated, since it must be quite visible to be enforceable. The largest portion of our fatal street traffic accidents occur in the winter months at twilight or during the hours of darkness. Both of the above considerations make effective illumination of important signs mandatory.

The American Engineering Council recommends that illumination be provided by one of the methods listed below, named in the order of preference:

(a) Attached lamps floodlighting the face of the sign;
(b) Self-luminous letters;
(c) Signs so located as to be illuminated by street lights;
(d) Reflecting letters illuminated by headlights of vehicles.

Actual data on the relative effectiveness of these various forms of illumination, however, was lacking. Furthermore, the first three methods all required the installation of expensive conduit and cable work that cannot be economically moved if a sign location is changed. Therefore a check of the relative effectiveness of plain unilluminated stop signs, signs illuminated by street lights placed in the most effective positions, and signs illuminated by local battery source of power, was made to determine whether a system of illumination could be developed that would be equal or superior to the best recommended practice but that would not involve the inherent high expense of conduit and cable work.

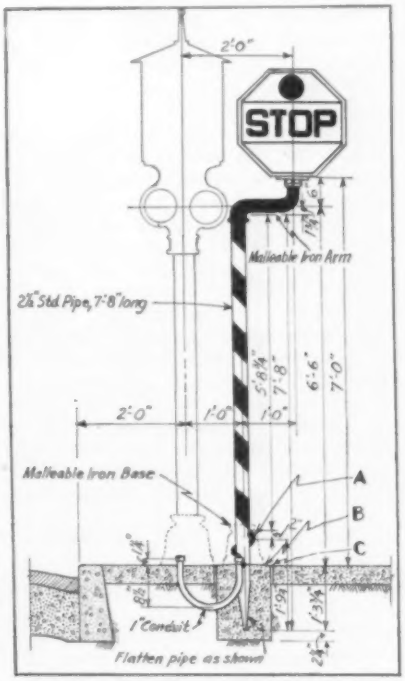
An Intersection Studied

At a given intersection of a comparatively heavy-traveled street with an arterial street, unlighted arterial stop signs had been in place for over a year. On Monday, November 5, 1928, a check of the cross traffic was made between the hours of 4 and 7 P.M. Daylight extended from 4 to 5 P.M., twilight from 5 to 5:30 P.M., and darkness from 5:30 to 7 P.M. In all, 1,613 vehicles were driven past the signs during the checking period. These vehicles were segregated into those coming from each direction, and were further segregated as to those coming to a full stop, those slowing down materially, and those running through the stop signs without apparently heeding them.

On November 9 the plain signs were removed and were replaced by 24-inch octagonal stop signs, equipped with 8¾-inch red lens, flashing 60 times a minute, and with the word "STOP" outlined in Rayflector units. The power for the flasher was supplied from a local battery contained in the sign head.

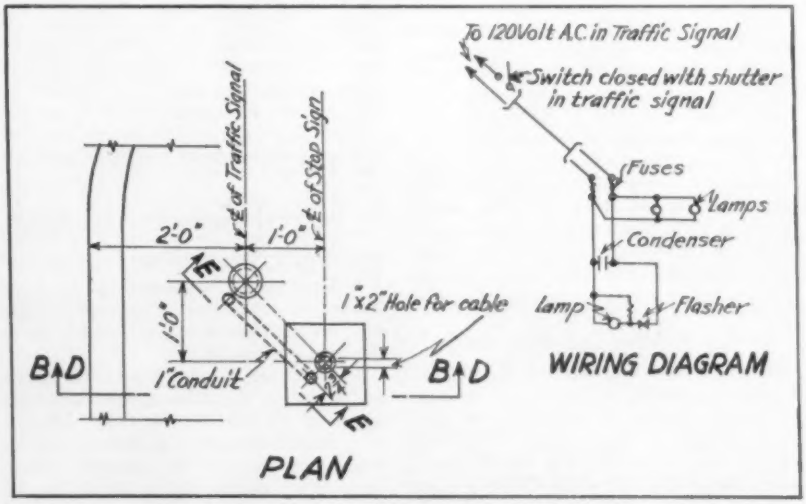
On Friday, December 7, 1928, approximately one month later, a recheck of the cross traffic was made between the hours of 3 and 6:30 P.M. Daylight extended from 3 to 5 P.M., twilight from 5 to 5:30 P.M., and darkness from 5:30 to 6:30 P.M. In all, 2,638 vehicles were driven past the signs during this second checking period. The vehicular movement was recorded and subdivided as in the first check. There was no material difference in the behavior of vehicles traveling from one direction as compared with those from the other.

This second check showed that the flashing sign brought approximately 98 per cent of the drivers to a full stop. The conclusion deduced from these tests is that the 24-inch octagonal "stop" sign, equipped with red flashing lens, and the word "STOP" rendered visible by effective reflector units, is more effective both by



SECTION SHOWING INSTALLATION OF 24-INCH OCTAGON STOP SIGN ADJACENT TO STOP-AND-GO SIGNAL

A—6-inch slack in cable (No. 12 cable, R. & L. C., 600-volt)
B—Raise concrete to drain and finish surface as sidewalk
C—½-inch premolded bituminous joint



PLAN AND WIRING DIAGRAM SHOWING USE OF WIRED-TYPE SIGN CONNECTED TO AUTOMATIC STOP AND GO SIGNAL

The illustration in the third column above shows a side view, partly in section

day and by night than a plain unilluminated sign in the daylight, and that the effectiveness of this type of sign increases at night, while the effectiveness of the plain stop sign decreases with darkness.

Similar checks were made of plain arterial stop signs both before and after placing a street light approximately 10 feet in front of and 14 feet above the sign face, with the light so directed that the sign face was brightly illuminated. The installation of the street light increased the number of vehicles that stopped after the hours of darkness to about the efficiency obtained with a plain sign in daylight, but was not nearly as effective as the flashing sign.

Tests were also conducted with signs illuminated by commercial source of power, so connected that the word "STOP" was formed by self-luminous, flashing white letters.

As a result of these tests it was determined that the general principle to be adopted was to employ a flashing red lens, which in itself means stop and proceed with caution, in order to attract attention to the sign. It was felt advisable to have this red lens flash both day and night at the rate of 60 flashes per minute. The cost of daylight operation is largely offset by the elimination of switching equipment to turn the sign on and off at night and morning. In addition it is believed mandatory to make the word "STOP" plainly conspicuous by steady illumination, so that after attention has been attracted to the sign by the flasher, the message "STOP" will be plain and unmistakable.

Two Types of Signs Developed

Having in mind the above general principles, two types of stop signs were developed. One was designed to use 110-volt power, employing a 23-watt lamp back of the flashing red lens, and two steady 10-watt lamps back of the word "STOP." The other was designed to use 9 dry cells as power, employing a 5-volt lamp back of the flashing red lens, and using Rayflector units to illuminate the word "STOP" at night. The tests as recited above had shown that the dry-cell-powered sign gave results approximately equal with those obtained by any other means. Both signs were so constructed as to appear approximately alike, as they both had the same external dimensions, same color, same sized word "STOP," and same sized (6⅜-inch) lens. The only appreciable difference was that the battery-powered sign head was 5 inches thick as compared with 4¼ inches for the other type. The choice between these signs was therefore one of economy. The comparative initial costs, cost of maintenance, and cost of moving signs is shown in the accompanying table.

Sign Mobility and First Cost

The factor of sign mobility is of great importance at this time in view of present rapid changes in traffic. To be economical only as far as first cost is concerned, the wired-type sign should be in place for at least 15 years. With present rapid changes in traffic it is extremely difficult to predict circumstances 15 years hence. Fifteen years ago there were less than 20,000 vehicles in San Francisco, over half of which were horse-drawn. Certainly any plan for arterial streets that had been made then would hardly be proper for today, because of the changes in amount and distribution of population, the growth to over 150,000 motor vehicles, the street improvements undertaken, and the new streets, boulevards, bridges, and tunnels constructed. The next 15 years hold possibilities for equally great changes. Therefore, any sign that is adopted for general use at this time should be of a type that may be easily and cheaply moved to another location.

The item of first cost of signs is also important in view of the magnitude of the problem. There are in San Francisco approximately 1,500 locations calling for placing of arterial stop signs. Therefore an increased initial cost of $37.50 each would amount to $55,250 in the aggregate. Most large cities are faced with similar problems.

COMPARATIVE TABLE OF COSTS OF ILLUMINATED ARTERIAL STOP SIGNS LOCAL-BATTERY POWERED AND WIRED TO COMMERCIAL SOURCE OF POWER

Item	Wired to Commercial Source of Power	Local Battery Power
1. Initial Cost:		
(a) Cost of sign head and post, including cost of furnishing and maintenance (excluding mechanism)	$17.50	$15.29
(b) Cost of equipment in sign head and installation of it (guaranteed for one year in case of local battery signs)	12.50	44.71
(c) Installation of sign and power supply	67.50	....
(d) Total initial cost of sign, installed (contract prices)	$97.50	$60.00
2. Maintenance:		
(a) Annual depreciation due to obsolescence, wear and tear, and collision, based on 15-year amortization period and 5-year life of local battery type mechanism	9.50	8.00
(b) Annual charge for power supply, at 2 cents per kwh. for power, or battery replacement 3 times yearly	11.68	8.70
(c) Annual inspection and lamp renewal charge	3.40	2.75
(d) Total annual charge per sign	$24.58	$19.45
3. Cost of moving one sign from one location to another in the event that the arterial street is changed	$75.00	$3.00

The Decision Reached

With these considerations in mind, three types of signs, all of them displaying 24-inch octagonal faces, have been adopted for use on the new $9,000,000 boulevard system. These three types are Wallace & Tiernan dry-battery flasher signs, signs wired to a commercial source of power, and plain unlighted signs. Battery-type signs will be used generally. Wired signs will be used on cross streets that are signalized, inasmuch as the installation cost is low at these places and it is desirable to connect the signs electrically to the signals, so that the light will be automatically turned on in the sign when the signal is shut down. Plain stop signs will be used at intersections of streets that are not yet graded but where a small amount of traffic enters, or at little-used blind streets that extend not over one or two blocks from the intersection.

The sign heads are made of sheet steel, porcelain enameled inside and out. By reference to the illustrations it will be seen that there is a hinged door in the back of the sign through which lamps and equipment may be inspected with a minimum of effort, thus reducing maintenance expense. The flashing mechanism of the battery-type sign is also equipped with an automatic lamp-charger, so constructed that if one lamp burns out another is placed in focus, thus insuring continuous operation of the flasher. It will also be noted that the entire mechanism can be removed and replaced with a new one by only removing and replacing two screws, thus eliminating the necessity of doing repair work in the field, and insuring prompt replacement of a flasher in service in case of accidental damage.

As a portion of the original construction work on San Francisco's new boulevards, traffic control devices, in addition to arterial stop signs, are being installed, including signal conduit, cable and posts, traffic laning, pedestrian tunnels, and other similar features. M. M. O'Shaughnessy, City Engineer of San Francisco, is in general charge of the boulevard design and construction.

Civil Service Rating of Purchasing Agents

ROCHESTER is the only city in New York out of 24 queried by the State Bureau of Municipal Information that has its purchasing agent under civil-service classification.

Not only are the city purchasing agents unclassified in the other 23 municipalities reporting to the Bureau, but different officials and departments have charge of the purchasing in the different cities. Thus in six of the places listed, the director of the Department or Bureau of Purchases is the purchasing agent. In Auburn, Newburgh, Niagara Falls and Watervliet the City Manager is the purchasing agent; in Geneva, the Mayor; in Elmira, the City Clerk; in White Plains, the Commissioner of Public Works; in Albany, Binghamton, and Syracuse, the secretary of the Board of Contract and Supply; and in Beacon, Glen Cove, Mechanicville and Saratoga, the Commissioner of Accounts.

Rochester maintains a Bureau of Purchase with a director in charge of its activities.

A Survey of Water-Meter Rates in the United States—Part IV

The rates here given in detail are from the original reports furnished to THE AMERICAN CITY *in connection with the water-supply statistics published in The Municipal Index for 1929. In The Municipal Index only domestic maximum and industrial minimum rates were given, together with many other statistics besides rates.*

MISSISSIPPI—(Continued)

Lexington, 2,500.

Gals. per Month	Per 1,000 Gals.
First 3,000	$1.00
Next 4,000	30¢
" 5,000	25¢
" 3,000	20¢

Winona, 3,000.

Cu. Ft. per Month	Per 100 Cu. Ft.	Total Bill
First 2,000	24¢	$4.80
Next 2,000	23¢	9.40
" 2,000	20¢	13.40
" 2,000	15¢	17.60
" 2,000	14¢	20.40
" 10,000	13¢	33.40
" 10,000	12¢	45.40
" 10,000	11¢	56.40
" 10,000	10¢	66.40
" 50,000	9¢	111.40

Over 100,000 gallons, 15¢ per 1,000 gals.

MISSOURI

Boonville, 5,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 30,000	30¢
" 35,000	25¢
" 50,000	20¢
" 75,000	18¢
" 200,000	16¢
Over 400,000	12¢

Minimum, 90¢ per month.

Cape Girardeau, 18,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 20,000	35¢
" 50,000	30¢
Excess	12¢

Minimum, 90¢ per month.

Carrollton, 3,800.

Gals. per Month	Per 1,000 Gals.
First 10,000	50¢
Next 10,000	45¢
" 10,000	35¢
" 10,000	30¢
" 10,000	25¢
" 50,000	20¢
Over 100,000	15¢

Minimum, $1.25 per month.

Hannibal, 20,000.

Gals. per Month	Per 1,000 Gals.	Bill not to Exceed
0 to 15,000	35¢	$4.20
15,000 to 45,000	28¢	11.25
45,000 to 90,000	25¢	18.90
90,000 to 150,000	21¢	27.00
150,000 to 300,000	18¢	39.00
300,000 to 600,000	13¢	

If the monthly consumption exceeds 600,000 gallons, the first 600,000 gallons are charged at 13 cents and the excess at 6 cents per 1,000 gallons.

Minimum, $1 per month.

Independence, 30,000.

Commercial Service For Small Consumers:

Minimum, $2.25 per quarter, allowing 6,000 gallons.
Excess, 35¢ per 1,000 gallons.
Meter rental, 25¢ per month.

Industrial Rates for Large Consumers:

When the amount of water consumed any one month is more than 10,000 gallons, the following rates apply:

Gals. per Month	Per 1,000 Gals.
First 10,000	35¢
Next 10,000	33¢
" 10,000	30¢
" 10,000	27¢
" 10,000	24¢
" 50,000	22½¢
" 100,000	21¢
" 100,000	18¢
" 100,000	15¢
" 100,000	14½¢
" 500,000	13½¢
Over 1,000,000	12¢

Definitions

Meter Rent.—In some works a charge is made for the rent of meters furnished and owned by the department. Where such a charge is made, it is in reality a service charge and it must be so classified. The service charge as now used ordinarily covers meter rent and much more, so that the meter rent represents only a fraction of the amount of what may be considered the normal service charge. Cases may be found where meter rents are used in connection with a minimum rate, but with this minor exception the service charge is not used in connection with a minimum rate.

Minimum Rate.—A minimum rate is an amount that is collected in any event, even though the price of the quantity of water registered by the meter does not amount to it.

Service Charge.—A service charge is a charge for the service, which is in addition to the amount that is charged for water.

Modified Service Charge.—Under this form there is a minimum charge for a certain quantity of water, and the amount of the minimum is made up of what would otherwise be the service charge and the meter rate for that quantity of water that is furnished for the minimum charge.

Uniform Rate.—A rate per thousand gallons or per hundred cubic feet that is charged uniformly for all quantities of water sold.

Jump Scale.—The quantities of water up to a certain limit are charged at a certain price; beyond that limit and inside another limit another and lower price is made, and beyond that there is another limit and another price, and so on. In some cases, two prices only are used; in others three, four or more, up to a dozen or twenty; and, in fact, divisions may be so numerous that the scale practically becomes a table which gives the water rate for every quantity of water that a meter records.

Modified Jump Scale.—Under this arrangement each step in the jump scale is subdivided into two parts, the second of which comprises all those quantities for which it would be possible to get a lower rate by drawing more water. For these quantities a lump sum collection is made, which sum is the minimum that could be obtained under the next step. For the first part of each step the rate remains as with the jump schedule.

Sliding Scale.—Under this arrangement the water first drawn up to a certain limit is charged at a certain rate. Additional quantities are charged at a lower rate, but the higher charge on the first quantity remains as part of the bill in all cases.

—From "Meter Rates for Water Works," by Allen Hazen, published by John Wiley & Sons, Inc., New York.

Kansas City, 433,000.

Cu. Ft. per Two Months	Per 100 Cu. Ft.	Total Bill
First 300	Minimum	$0.50
Next 2,000	17¢	3.40
" 2,000	16¢	6.60
" 3,000	15¢	11.10
" 3,000	14¢	15.30
" 5,000	13¢	21.80
" 5,000	12¢	27.80
" 10,000	11¢	38.80
" 20,000	10¢	58.80
" 50,000	8¢	98.80
" 400,000	7¢	378.80
Excess	6¢	

Kennett, 4,500.

Gals.		Total Bill
First 2,000	$1.00	$1.00
	Per 1,000 Gals.	
Next 3,000	35¢	2.05
" 5,000	25¢	3.30
" 40,000	15¢	9.30
" 100,000	10¢	19.30
Over	8¢	

Macon, 4,000

Gals. per Month	Per 1,000 Gals. Gross	Net
First 2,000	66¢	60¢
2,001 to 5,000	55¢	50¢
5,001 to 10,000	44¢	40¢
10,001 to 20,000	38½¢	35¢
20,001 to 50,000	33¢	30¢
Over 50,000	28½¢	25¢

Minimum, $1 per month.

Commercial Rate	
First 100,000	20¢
Next 400,000	18¢
" 500,000	17½¢
Over 1,000,000	15¢

Minimum, $1 per month.
Net rates apply if paid before 10th of month.

Maitland, 716.

Gals. per Month	Per 1,000 Gals.
1,000	60¢
3,000	45¢
10,000	35¢
20,000	25¢
Over 20,000	20¢

Minimum, 75¢ per month.

Maryville, 5,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 500	60¢
Next 500	50¢
" 1,000	40¢
" 1,000	30¢
" 1,000	25¢
" 30,000	20¢
Over 34,000	15¢

Minimum, $1 per month.

Memphis, 1,800.

Gals. per Month	Per 1,000 Gals.
First 5,000	50¢
Next 5,000	30¢
" 15,000	20¢
Over 25,000	10¢

Minimum, 75¢ per month.

Moberly, 15,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 2,000	52¢
2,000 to 4,000	45¢
4,000 to 6,000	42¢
6,000 to 8,000	37¢
8,000 to 10,000	33¢
Over 10,000	30¢

Minimum, $1 per month.

Montgomery City, 2,000.

Gals. per Month	Per 1,000 Gals.
5,000 or less	75¢
5,000 to 10,000	60¢
10,000 to 20,000	50¢
Over 20,000	30¢

Minimum, 75¢ per month.

Mountain Grove, 3,000.

Gals. per Month	
1,000 or less	$1.00
	Per 1,000 Gals.
Next 2,000	60¢
" 2,000	50¢
" 5,000	40¢
Over 10,000	35¢

Neosho, 4,500.

Gals. per Quarter	Per 1,000 Gals.
1,000 to 5,000	30¢
5,000 to 30,000	24¢
30,000 to 125,000	21¢
125,000 to 500,000	15¢
Over 500,000	9¢

Minimum, $7.20 per year.

Palmyra, 2,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	35¢
Next 10,000	30¢
" 10,000	25¢
" 20,000	20¢
Over 45,000	10¢

Minimum, 50¢ per month.

MISSOURI—(Continued)

Paris, 2,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	40¢
Next 5,000	30¢
" 5,000	25¢
Over 15,000	20¢

Minimum, 50¢ per month.

Pierce City, 2,500.

Gals. per Month	Per 1,000 Gals.
First 1,000	60¢
Next 1,000	50¢
" 1,000	40¢
" 1,000	30¢
Over 4,000	20¢

Minimum, 60¢ per month.

Ste. Genevieve, 3,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	30¢
Next 2,000	25¢
" 3,000	20¢
Over 6,000	15¢

Minimum Charges

Size of Meter	Per Month
⅝" and ¾"	$2.00
1"	4.00
1¼"	6.00
1½"	8.00

Larger meters by contract only.
5¢ per 100 cubic feet added to bills not paid by 10th of month.

St. Louis County, 158,000.

Gals. per Quarter	Per 1,000 Gals.
0 to 3,000	48¾¢
3,000 to 9,000	45¢
9,000 to 36,000	37½¢
36,000 to 225,000	30¢
225,000 to 600,000	22½¢
Over 600,000	18¢

Minimum Charges

Size of Meter	Per Month
⅝"	$1.00
¾"	2.00
1"	4.00
1½"	6.00
2"	10.00
3"	18.00
4"	36.00
6"	60.00

Salem, 2,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	50¢
Next 5,000	40¢
" 5,000	35¢
" 5,000	30¢
Over 20,000	25¢

Minimum, $1 per month.

Springfield, 60,000.

Gals. per Month	Per 1,000 Gals.
First 100,000	28¢
Next 100,000	22½¢
" 100,000	17¢
" 300,000	13¾¢
Over 600,000	11¢

Minimum Charges

Size of Meter	Per Quarter
⅝"	$3.00
	Per Month
¾"	$2.00
1"	4.00
1½"	8.00
2"	15.00
3"	20.00
4"	30.00
6"	100.00
8"	200.00

Trenton, 8,000.

Cu. Ft. per Month	Per 100 Cu. Ft.	Total Bill
First 500	40¢	$2.00
Next 500	35¢	3.75
" 1,000	30¢	6.75
" 1,000	25¢	9.25
" 1,000	20¢	11.25
" 1,000	17½¢	13.00
" 5,000	15¢	20.50
" 10,000	12½¢	33.00
" 10,000	10¢	43.00
" 10,000	9¢	52.00
" 10,000	8¢	60.00
Over 50,000	7¢	

MONTANA

Billings, 17,500.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	25¢
Next 1,000	15¢
" 48,000	10¢
" 50,000	8¢
" 100,000	6¢
Over 200,000	5¢

Chinook, 1,500.

Gals. per Month	
First 2,000	$2.00
	Per 1,000 Gals.
Next 3,000	35¢
" 3,000	25¢
" 500,000	13¢
Over	10¢

Columbus, 1,200.

Gals. per Month	Total Bill
1,000	$1.50
2,000	2.25
3,000	3.00
4,000	3.50
5,000	4.00
10,000	6.50
20,000	10.50
30,000	13.50
50,000	19.50

Glendive, 5,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 300	60¢
Next 1,200	25¢
" 2,500	20¢
" 36,000	15¢
Over 40,000	10¢

Minimum Charges

Size of Meter	Per Month
¾"	$1.80
1"	2.25
1¼"	3.00
1½"	5.00
2"	7.50
2½"	10.00
3"	12.00
4"	15.00

Hamilton, 1,800.

Commercial Meter Rates

Cu. Ft. per Month	Per 100 Cu. Ft.	Total Bill
First 5,000	26¢	$13.00
Next 5,000	18¢	22.00
" 5,000	15¢	29.50
" 5,000	12¢	35.50
" 5,000	11¢	41.00
" 25,000	9¢	63.50
" 30,000	7¢	84.50
" 60,000	6¢	120.50

Industrial Rates

Cu. Ft. per Month	Per 1,000 Cu. Ft.	Total Bill
First 5,000	$2.60	$13.00
Next 5,000	1.80	22.00
" 5,000	1.50	29.50
" 5,000	1.20	35.50
" 5,000	1.10	41.00
" 25,000	.90	63.50
" 30,000	.70	84.50
" 100,000	.60	144.50
Over 180,000	.50	

Kalispell, 6,500.

Gals. per Month	
First 2,000	$1.00
	Per 1,000 Gals.
2,000 to 10,000	40¢
10,000 to 20,000	35¢
20,000 to 50,000	30¢
50,000 to 100,000	25¢
100,000 to 200,000	20¢
200,000 to 300,000	15¢
300,000 to 500,000	10¢
Over 500,000	7½¢

Laurel, 2,500.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 400	62½¢
Next 600	35¢
" 2,000	20¢
" 2,000	15¢
" 135,000	10¢
Over 140,000	5¢

The 35¢, 20¢ and 15¢ rates are not effective from May to September, inclusive.

Livingston, 7,000.

Gals per Month	Per 1,000 Gals.	Total Bill
First 35,000	25¢	$8.75
35,000 to 80,000	20¢	17.75
80,000 to 90,000	17¢	19.45
90,000 to 150,000	15¢	27.75
150,000 to 200,000	13½¢	35.20
200,000 to 300,000	10¢	45.20
Over 300,000	7¢	

NEBRASKA

Alliance, 6,250.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
1 to 6,666	15¢
6,666 to 13,333	12¾¢
13,333 to 26,666	10½¢
26,666 to 66,666	8¼¢
Over 66,666	6¾¢

Minimum, $2 per quarter.

Auburn, 3,500.

Gals. per Month	
First 1,000	65¢
	Per 1,000 Gals.
1,000 to 5,000	50¢
5,000 to 10,000	44¢
10,000 to 20,000	37¢
20,000 to 40,000	31¢
40,000 to 80,000	25¢
Over 80,000	20¢

Meter Rent

Size of Meter	Per Month
⅝"	$0.25
¾"	0.50
1"	0.75
1¼"	1.00
1½"	1.25
2"	1.50

Blair, 3,000.

Cals. per Quarter	
First 300	$1.50
	Per 1,000 Gals.
Next 9,700	35¢
" 7,500	30¢
" 347,500	25¢
" 365,000	20¢
Over 730,000	15¢

Bloomfield, 1,500.
Minimum, $2.25 per quarter.
Excess, 45¢ per 1,000 gallons.

Bridgeport, 1,500.

Gals. per Month	
First 5,000	$1.00
	Per 1,000 Gals.
Next 5,000	20¢
" 10,000	15¢
Balance	12¢

Crawford, 1,646.

Gals. per Quarter	
First 16,000	$2.00
	Per 1,000 Gals.
Next 20,000	12¢
" 24,000	10¢
" 40,000	8¢
Over 100,000	7¢

Falls City, 6,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 10,000	35¢
" 10,000	30¢
" 10,000	25¢
" 10,000	20¢
" 50,000	10¢
" 100,000	9¢
Over 200,000	8½¢

Minimum, 75¢ per month.

Fremont, 9,605.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 3,500	15¢
Next 3,500	12¢
" 13,000	9¢
" 13,500	7½¢

Geneva, 1,700.

Cu. Ft.	Per 100 Cu. Ft.
First 100	$2.00
Next 1,000	0.25
" 5,000	0.20
" 10,000	0.15
Over 16,100	0.10

Grand Island, 17,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	12¢
Next 3,000	21¢
" 6,000	9¢
" 90,000	8¢
" 100,000	7¢
Over 200,000	6¢

Minimum, $6 per year.

Mitchell, 1,000.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	25¢
Next 10,000	15¢
Over 20,000	10¢

Minimum, $1.50 per quarter.

Omaha, 228,200.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 14,000	12½¢
Next 36,000	9¢
" 950,000	7½¢
" 1,230,000	6¢
Over 2,230,000	6¢

Minimum, 35¢ per month.

Plattsmouth, 5,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 500	55¢
Next 2,000	40¢
" 2,000	25¢
Over 4,500	15¢

Minimum, $4.25 per quarter.

Schuyler, 2,636.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
1 to 1,000	20¢
1,000 to 3,000	15¢
3,001 to 5,000	12¢
5,001 to 8,000	10¢
Over 8,000	8¢

Minimum, $1.75 per quarter.

Scottsbluff, 8,000.

Gals. per Month	Per 1,000 Gals.
5,000	25¢
Over 5,000	15¢

Minimum, $1.25 per month.
5¢ per 1,000 gallons discount if paid before 10th.

Stanton, 1,428.
25¢ per 1,000 gallons.
Minimum, $1 per quarter.

Superior, 3,000.

Gals. per Quarter	
First 7,000	$2.00
	Per 1,000 Gals.
Next 50,000	25¢
" 50,000	20¢
" 50,000	15¢
Over 157,000	1[illegible]

NEVADA

Tonopah, 3,500.

Domestic

Gals. per Month	Per 1,000 Gals.
First 1,000	$3.25
Next 2,000	2.75
" 4,000	2.50
" 4,000	2.00
" 89,000	1.75

Industrial

First 1,000	$3.75
Next 2,000	3.15
" 4,000	2.85
" 4,000	2.30
" 89,000	2.00
" 200,000	1.75
" 200,000	1.45

Consumers using over 500,000 gallons per month subject to special contracts.
Minimum, $2 per month.

Winnemucca, 2,500.

Gals. per Month	Per 1,000 Gals.
First 30,000	20¢
Next 20,000	17¢
Over 50,000	12½¢

Minimum, monthly charges for residences:

One outside hydrant, water not in house	$2.00
Four rooms or less without sewer connections	2.50
Over four rooms without sewer connections	2.75
Residences with sewer connections	3.00

NEW HAMPSHIRE

Berlin, 20,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 1,500	30¢
Next 3,500	22¢
" 5,000	18¢
" 10,000	15¢
" 20,000	12¢
Over 40,000	10¢

Service charge, $1 per quarter.
Minimum, $22 per year.

Claremont, 8,000.

For domestic purposes, 15¢ per 100 cubic feet.
Minimum, $12 per year.
For motors, livery stables and laundries:

Cu. Ft. per Month	Per 100 Cu. Ft.
First 2,000	15¢
Next 3,000	10¢
Over 5,000	7½¢

Concord, 22,546.

Cu. Ft. per Quarter	
First 1,500	$2.50
	Per 100 Cu. Ft.
Next 3,500	15¢
" 5,000	14¢
" 5,000	13¢
" 5,000	11¢
" 15,000	9¢
" 300,000	8¢
" 565,000	7¢

10,000 cubic feet or more per day through not more than 4 meters, at 5¢ per 100 cubic feet flat; 40,000 cubic feet or more per day through not more than 4 meters, at 3½¢ per 100 cubic feet, flat.
Minimum, $2.50 per quarter.

Dover, 15,000.

Cu. Ft. per Year	Per 100 Cu. Ft.
First 13,000	23¢
Next 53,000	21¢
Excess	19¢

Minimum, $10 per year, covering 4,347 cubic feet.

Farmington, 2,500.

Gals. per Day	Per 1,000 Gals.
75 or less	48¢
75 to 150	44¢
150 to 300	42¢
300 to 450	38¢
450 to 700	36¢
700 to 1,000	30¢

Keene, 12,000.

Cu. Ft. per Quarter	
First 500	$1.50
	Per 100 Cu. Ft.
Next 9,000	17¢
" 9,000	12¢
" 9,000	10¢
" 9,000	7¢
" 9,000	5¢
Over 45,500	3¢

Minimum, $1.50 per quarter.

Lebanon, 5,000.

Cu. Ft. per Quarter	
First 700	$1.65
	Per 100 Cu. Ft.
700 to 1,400	19¢
Over 1,400	12¢

Meter rental $1.50 per year.

Manchester, 83,000.

For continuous supply, 10¢ per 100 cubic feet.
For large consumers:

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 100,000	10¢
Over 100,000	7¢

Minimum, $8 per year.

Nashua, 30,000

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	18¢
Next 90,000	12¢
" 100,000	9¢
" 1,050,000	6¢
Over 1,250,000	4½¢

Minimum, $19.20 per year.

Pittsfield, 2,000.

Cu. Ft. per Day	Per 100 Cu. Ft.
Less than 100	18¢
100 to 200	16¢
200 to 300	14¢
300 to 400	12¢
Over 400	10¢

Portsmouth, 15,000.

Sherburne or high-pressure water:

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 6,000	30¢
Over 6,000	20¢

Peverly or low-pressure water:

Up to 30,000	20¢

Minimum Charges

Size of Meter	Per Year
⅝"	$6.00
¾"	9.00
1"	12.00
1¼"	15.00
1½"	18.00
2"	30.00
3"	45.00
4"	100.00
6"	200.00

Rochester, 9,000.

Gals. per Day	Per 1,000 Gals.
95 to 1,499	20¢
1,500 to 2,999	17½¢
3,000 to 4,999	15¢
Over 5,000	10¢

Minimum, $7 per year for 35,000 gallons.

Somersworth, 6,500.

Gals. per Year	Per 1,000 Gals.
First 100,000	36¢
100,000 to 500,000	30¢
Over 500,000	24¢

Minimum, $12 per year.

NEW JERSEY

Butler, 10,500.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$2.75
Next 20,000	2.00
Over 30,000	0.70

Minimum, $3.00 per quarter for 1,100 cubic feet.

Fixed Service Charges

Size of Meter	Per Quarter
½ or ⅝"	$1.50
¾"	2.50
1"	5.50
1½"	13.50
2"	18.00
3"	43.75
4"	62.50
6"	120.00
8"	210.00

East Orange, 70,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 50,000	$1.70
Over 50,000	1.50

Minimum Charges

Size of Meter	Per Quarter
⅝"	$1.70
¾"	4.00
1"	6.00
1½"	15.00
2"	20.00
3"	45.00
4"	65.00
6"	125.00
8"	200.00

Glassboro, 5,100.

Gals. per Quarter	Per 1,000 Gals.
First 25,000	65¢
Next 25,000	50¢
" 200,000	40¢
" 250,000	30¢
Over 500,000	25¢

Minimum for ¾" meter, $4 per quarter.
For service through larger meters, the following fixed service charges are made:

Size of Meter	Per Quarter
⅝"	$2.70
1"	5.40
1½"	10.80
2"	18.00
3"	45.00
4"	63.00
6"	120.00

Hackensack and 51 other towns, 400,000.

New Milford District

Cu. Ft. per Year	Per 1,000 Cu. Ft.
First 40,000	$1.40
40,000 to 400,000	1.30
400,000 to 4,000,000	1.20
Over 4,000,000	1.00

New Durham Low-Level District and Weehawken High-Service District

First 40,000	$1.80
40,000 to 400,000	1.50
400,000 to 4,000,000	1.30
Over 4,000,000	1.00

Englewood High Service District

First 40,000	$2.40
40,000 to 400,000	1.70
Over 400,000	1.50

Uniform Fixed Service Charges

Size of Meter	Per Quarter
½" or ⅝"	$1.60
¾"	2.75
1"	5.50
1½"	14.50
2"	20.00
3"	45.00
4"	65.00
6"	125.00
8"	200.00
10"	230.00
30"	1,500.00

Hoboken, 68,900.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$1.35
10,000 to 100,000	1.25
100,000 to 1,000,000	1.15
Over 1,000,000	1.05

Minimum, $8 per year.

Hopewell, 1,700.

Gals. per Six Months	
First 5,000	$4.00
Next 5,000	3.00
" 5,000	1.50

Excess, 15¢ per 1,000 gallons.

Mays Landing, 2,200.

Gals. per Quarter.	Per 1,000 Gals.
First 50,000	33¢
Next 50,000	30¢
" 100,000	25¢
Over 200,000	20¢

Service Charge

Size of Meter	Per Year
⅝"	$5.00
¾"	7.50
1"	10.00
1½"	20.00
2"	30.00
3"	60.00
4"	80.00
6"	100.00

Newark, 474,000.

Low-pressure rates: $1.50 for first 500 cubic feet per quarter, $1 per 1,000 cubic feet for excess. Discount of 2 per cent per $100 annually with maximum discount of 40 per cent on $2,000 or more.
High-pressure and out-of-town rates: $2 for first 500 cubic feet per quarter; $1.33⅓ per 1,000 cubic feet for excess.

New Brunswick, 50,000.

$1.50 per 1,000 cubic feet. Minimum, $15 per year. $1.35 per 1,000 cubic feet where 500,000 cubic feet or more is used per quarter.

Orange, 35,000.

Domestic rates: $1.875 per 1,000 cubic feet

Commercial Rates

Cu. Ft.	Per 1,000 Cu. Ft.
First 20,000	$1.875
Next 100,000	1.50
" 200,000	1.35
200,000 to 2,000,000	1.05
Over 2,000,000	0.85

Passaic, 70,000.
Clifton, 38,000.
Paterson, et al, 500,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$1.00
Next 90,000	0.90
" 900,000	0.70
Over 1,000,000	0.50

Fixed Service Charge

Size of Meter	Per Quarter
⅝"	$1.50
¾"	2.50
1"	5.50
1½"	13.50
2"	18.00
3"	45.00
4"	60.00
6"	120.00
8"	190.00

Plainfield and 17 other cities and towns, 100,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$1.75
Next 90,000	1.45
" 900,000	1.15
Over 1,000,000	0.85

Fixed Service Charge

Size of Meter	Per Quarter
½ or ⅝"	$1.50
¾"	2.50
1"	5.50
1½"	13.50
2"	18.00
3"	43.75
4"	62.50
6"	120.00
8"	190.00
10"	216.00
12"	312.50
16"	462.50

Bills for service through ½", ⅝" or ¾" meters subject to minimum of $3 per quarter, plus 5 per cent surcharge.

NEW JERSEY—(Continued)

Princeton, 8,200.

Gals. per Quarter	Per 1,000 Gals.
First 25,000	28¢
Next 100,000	26¢
" 2,375,000	22¢
Over 2,500,000	18¢

Fixed Service Charge

Size of Meter	Per Quarter
½ or ⅝"	$1.00
¾"	1.75
1"	3.50
1¼"	6.00
1½"	9.00
2"	12.00
3"	29.00
4"	42.00

Ridgewood, 19,000.

Gals. per Quarter	Per 1,000 Gals.	Total Bill
First 100,000	30¢	$30.00
100,000 to 200,000	25¢	55.00
200,000 to 300,000	20¢	75.00
Over 300,000	15¢	

Service Charge

Size of Meter	Per Quarter
⅝"	$1.50
¾"	2.00
1"	2.50
1¼"	3.00
1½"	3.50
2"	4.00

Sayreville, 8,000.

Cu. Ft. per Quarter	
First 1,000	$3.75
	Per 1,000 Cu. Ft.
Next 10,000	2.50
" 40,000	2.00
" 50,000	1.80
" 100,000	1.60

Toms River, 2,200.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	30¢
Next 20,000	25¢
" 40,000	20¢
Over 70,000	15¢

Minimum, $3.75 per quarter.

For public garages, water-cooled engines, steam boilers, etc., a demand or stand-by charge, is made, as follows:

Size of Meter	Per Quarter
½ or ⅝"	$1.25
¾"	2.00
1"	4.00
1½"	11.00
2"	15.00
3"	36.00

Wenonah, 1,250.

Gals. per Year	
First 50,000	$20.00
	Per 1,000 Gals.
50,000 to 100,000	25¢
100,000 to 150,000	20¢
150,000 to 200,000	18¢
Over 200,000	15¢

NEW MEXICO

Albuquerque, 25,000.

Gals. per Month	Per 1,000 Gals.
First 18,000	30¢
18,000 to 45,000	27½¢
45,000 to 90,000	25¢
Over 90,000	20¢

Minimum, $1.00 per month.

Gallup, 6,000.

Gals. per Month	Per 1,000 Gals.
First 1,000	$2.50
Next 1,000	2.00
" 8,000	1.00
" 10,000	0.75
Over 20,000	0.50

Minimum, $2.50 per month.

Roswell, 10,000.

Gals. per Month	Per 1,000 Gals.
First 3,000	33⅓¢
Next 7,000	15¢
" 40,000	10¢

Minimum, $1 per month.

Santa Fe, 10,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	40¢
Next 10,000	30¢
" 25,000	20¢
" 160,000	15¢
" 200,000	10¢
" 400,000	8¢
" 700,000	7¢
" 1,000,000	6¢
Excess	5¢

During May, June, July and August, a reduction of 25 per cent from the second, third and fourth blocks will be allowed for irrigation service, with separate meters.

Service Charge

Size of Meter	Per Month
¾"	$0.50
¾"	0.75
1"	1.00
1¼"	1.50
2"	2.00
3"	3.00
4"	4.00
6"	6.00

Minimum, including Service Charge

Size of Meter	Per Month
¾"	$1.70
¾"	2.50
1"	4.00
1¼"	7.00
2"	11.00
3"	23.00
4"	32.00
6"	45.00

Tucumcari, 4,500.

Minimum, including 5,000 gallons, $2.00. Over 5,000 gallons, 40¢ per 1,000 gallons.

NEW YORK

Ardsley, 1,500.

Cu. Ft. per Year	Per 1,000 Cu. Ft. Low-Serv. Dist.	Per 1,000 Cu. Ft. High-Serv. Dist.
First 40,000	$2.80	$3.50
Next 360,000	2.50	3.10
" 600,000	2.10	2.75
Over 1,000,000	1.75	2.30

The low-service district embraces all areas supplied from the Pocantico pumping station without repumping; and the high-service, all areas supplied from the Ardsley high-service pumping station.

Fixed Service Charge

Size of Meter	Per Quarter
½ or ⅝"	$2.00
¾"	3.00
1"	7.00
1¼"	18.00
2"	24.00
3"	58.00
4"	84.00
6"	158.00
8"	254.00
10"	288.00

Beacon, 11,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 5,000	$2.50
5,000 to 10,000	2.00
10,000 to 25,000	1.75
25,000 to 50,000	1.50
50,000 to 100,000	1.25
100,000 to 500,000	1.00
Over 500,000	0.75

Minimum, $5 per year.

Belmont, 1,000.

Gals. per Year	
First 18,000	$8.00
	Per 1,000 Gals.
Next 12,000	40¢
" 10,000	36¢
" 10,000	33⅓¢
" 50,000	30¢
" 50,000	26⅔¢

Binghamton, 80,000.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
Less than 4,000	10¢
4,000 to 8,000	9¢
8,000 to 16,000	8¢
16,000 to 24,000	7¢
Over 24,000	6¢

Minimum, $6.50 per year, allowing 6,500 cubic feet.

Canastota, 4,500.

Cu. Ft. per 6 Mo.	Per 100 Cu. Ft.	Plus
900 to 23,000	16¢	$1.31
23,000 to 37,000	12¢	10.51
37,000 to 60,000	8¢	25.31
Over 60,000	4¢	49.31

Minimum, $2.75 per six months, allowing 900 cubic feet.

Corning, 15,800.

Gals. per Quarter	Per 1,000 Gals.	Total Bill
First 10,000	37¢	$3.70
Next 10,000	28¢	6.50
" 10,000	27¢	9.20
" 10,000	25¢	11.70
" 10,000	24¢	14.10
" 50,000	22¢	25.10
" 100,000	18¢	43.10
" 100,000	14¢	57.10
" 100,000	12¢	69.10
" 100,000	11¢	80.10
" 500,000	10¢	130.10

Rates for Large Consumers

Gals. per Quarter	Per 1,000 Gals.	Total Bill
First 1,000,000	12¢	$120
Next 1,000,000	11¢	230
" 1,000,000	10¢	330
" 1,000,000	9¢	420
" 1,000,000	8¢	500
" 5,000,000	7¢	850
" 5,000,000	6¢	1,150
" 10,000,000	5¢	1,650
" 10,000,000	4¢	2,000
Additional	4¢	

Dunkirk, 20,000.

Gals. per Day	Per 1,000 Gals.
4,000 or less	12¢
4,000 to 7,000	11¢
7,000 to 10,000	10¢
10,000 to 14,000	8½¢
14,000 to 18,000	8¢
18,000 to 30,000	7½¢
Over 30,000	6½¢

Elmira, 60,000.

Cu. Ft.	Per 100 Cu. Ft.
First 500	30¢
Next 2,000	25¢
" 2,500	20¢
" 5,000	15¢
" 10,000	7½¢
" 80,000	7¢
" 100,000	6½¢
" 1,000,000	6¢
Balance	5½¢

Minimum, $6 per year. Bills rendered monthly where consumption exceeds 20,000 cubic feet per month. Other bills quarterly.

Genesee, 2,955.

Gals. per Quarter	Per 1,000 Gals.	Total Bill
First 10,000	40¢	$4.00
Next 10,000	25¢	6.50
" 10,000	20¢	8.50
" 10,000	18¢	10.30
Over 40,000	18¢	

Minimum, $1.50 per quarter.

Geneva, 18,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 1,300	25¢
1,300 to 14,300	13¢
Over 14,300	6¢

Minimum, $2 per quarter, allowing 800 cubic feet.

Herkimer, 12,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 5,000	25¢
Next 5,000	20¢
" 10,000	16¢
" 10,000	13¢
" 20,000	11¢
" 50,000	10¢

Minimum, $2.25 per quarter. Meter rental, 25¢ per quarter.

Jamestown, 56,206.

20¢ per 100 cubic feet. Minimum, $1.50 per quarter.

Kingston, 30,000.

Cu. Ft. per Quarter	
First 1,500	$3.00
	Per 1,000 Cu. Ft.
Next 3,500	$1.75
" 5,000	1.25
" 10,000	0.80
" 20,000	0.50

Minimum, $5 per quarter.

Mt. Kisco, 5,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
1,001 to 10,000	$3.50
10,000 to 15,000	2.75
15,000 to 20,000	2.50
20,000 to 25,000	2.35
Over 25,000	2.10

Minimum, $3.50 per quarter.

Mt. Vernon, 60,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 5,000	32¢
Next 45,000	26¢
" 50,000	20¢
Over 100,000	15¢

Newark, 6,500.

Gals. per Six Months	Per 1,000 Gals.
First 10,000	30¢
Next 20,000	20¢
" 20,000	15¢
" 1,000,000	10¢
" 1,000,000	9¢
Balance	8¢

Minimum, $3 per six months.

New York City, 6,107,000.

10¢ per 100 cubic feet.

Niagara Falls, 75,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.	Minimum Charge
Less than 20,000	8¢	$1.50
20,000 to 40,000	7¢	15.92
40,000 to 60,000	6½¢	27.93
60,000 to 80,000	5½¢	37.44
80,000 to 100,000	4¾¢	43.95
100,000 to 250,000	4¼¢	47.45
Over 250,000	3½¢	106.21

The minimum charge for water in any classification shall not be less than the maximum charge under the next lower classification at the next higher rate charged.

Minimum, $6 per year.

Nyack, 10,000.

Fixed Service Charge

Size	Per Quarter	Allowance Cu. Ft.
⅝"	$3.75	1,250
1"	5.00	1,875
1½"	7.50	3,125
2"	12.50	5,750
2½"	16.25	7,625
3"	21.25	10,250

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
Allowance to 10,000	$2.00
Next 90,000	1.60
" 150,000	1.15
Over 250,000	0.70

NEW YORK (Continued)

Oneida, 12,000.

Gals. per Quarter	Per 1,000 Gals.	Total Bill
1 to 20,000	50¢	$10.00
20,000 to 50,000	45¢	23.50
50,000 to 100,000	40¢	43.50
100,000 to 250,000	36¢	97.50
250,000 to 500,000	32¢	177.50
500,000 to 1,000,000	28¢	317.50
1,000,000 to 5,000,000	24¢	1,277.50
5,000,000 to 10,000,000	20¢	2,277.50
10,000,000 to 20,000,000	16¢	3,877.50
20,000,000 to 30,000,000	12¢	5,077.50
30,000,000 to 45,000,000	11¢	6,727.50
Over 45,000,000	9¢	

Minimum, $5 per quarter.

Port Chester, 35,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 700	$3.75
Next 9,300	33¢
" 10,000	30¢
" 10,000	25¢
" 10,000	20¢
Over 40,000	17½¢

Poughkeepsie, 40,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$2.00
Next 10,000	1.75
Over 20,000	1.60

Minimum, $1 per quarter.

Meter Rentals

Size of Meter	Per Quarter
⅝"	$0.25
¾"	0.50
1"	1.00
1½"	1.50
2"	2.00
3"	3.00
4"	4.00
5"	5.00
6"	6.00

Rensselaer, 11,500.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 2,000	25c
Next 8,000	15c
Over 10,000	9c

Minimum, $3 per quarter.

Rochester, 300,800.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 20,000	$1.35
Next 80,000	1.20
Over 100,000	1.05

Minimum, $1.50 per quarter.

Rouses Point, 1,800.

Gals. per Day Average	Per 1,000 Gals.
2,000	50¢
3,000	36¢
4,000	29¢
5,000	2o¢
6,000	22¢
7,000	20¢
8,000	18½¢
9,000	17½¢
10,000	16½¢
20,000	13½¢
30,000	12¢
40,000	12¢
75,000	11¢
100,000	10¢

Saugerties, 5,000.

Gals. per Day	Per 1,000 Gals.
Less than 1,000	25¢
1,000 to 5,000	20¢
5,000 to 20,000	15¢
20,000 to 40,000	10¢
40,000 to 100,000	8¢

Scarsdale, 9,000.

Fixed Service Charge

Size of Meter	Per Quarter
⅝"	$1.00
¾"	1.75
1"	3.50
1½"	9.00
2"	12.00
4"	40.00
6"	80.00

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 10,000	$2.50
Next 90,000	2.30
" 100,000	2.00
" 100,000 or more	1.70

Utica, 150,000.

Cu. Ft. per Quarter	Per 1000 Cu. Ft.	Total Bill
First 1,000	$3.00	$3.00
Next 9,000	2.25	23.25
" 10,000	2.10	44.25
" 10,000	1.90	63.25
" 10,000	1.70	80.25
" 10,000	1.50	95.25
" 150,000	1.40	305.25
" 300,000	1.20	665.25
" 500,000	1.00	1,165.25
" 500,000	0.90	1,615.25
" 500,000	0.70	1,965.25
Over 2,000,000	0.60	

Minimum, $2 per quarter, including 666 cubic feet.

Watertown, 33,000.

Fixed Service Charge

Size of Meter	Per Month
⅝"	$0.25
¾"	0.40
1"	0.60
1½"	1.10
2"	1.75
3"	3.40
4"	5.00
6"	10.00
8"	15.00
10"	20.00
12"	25.00

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 3,300	90¢
Next 3,300 to 33,000	70¢
Over 33,000	50¢

NORTH CAROLINA

Asheville, 60,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	35¢
Next 10,000	32¢
" 15,000	30¢
" 20,000	28¢
" 50,000	26¢
" 100,000	20¢
" 100,000	16¢
" 100,000	14¢
" 100,000	12¢
Over 500,000	10¢

Minimum, 90¢ per month ,allowing 2,500.

Meter Rental

Size of Meter	Per Month
⅝"	$0.10
¾"	0.12
1"	0.18
1½"	0.50
2"	0.65
3"	1.25
4"	2.00
6"	4.50
8"	6.50
12"	7.00

Dunn, 10,000.

Gals. per Month	Per 1,000 Gals.
First 2,000	$1.50
Next 20,000	35¢
" 20,000	30¢
" 20,000	25¢
Over 62,000	20¢

Elizabeth City, 10,000.

Domestic Rates

Gals. per Month	Per 1,000 Gals.
First 10,000	36¢
Over 10,000	24¢

Manufacturing Rates

Less than 120,000	24¢
120,000 to 240,000	18¢
240,000 to 360,000	15¢
Over 360,000	12¢

Minimum Charges

Size of Meter	Per Month
⅝"	$0.75
¾"	1.25
1"	1.75
1½"	4.00
2"	7.00
3"	10.00
4"	28.00
6"	40.00
8"	112.00

Elkin, 2,500.

Gals. per Month	Per 1,000 Gals.
First 2,000	37¢
Next 3,000	33⅓¢
" 4,000	25¢
" 15,000	20¢
Over 25,000	16⅔¢

Minimum, $1.11 per month, allowing 3,000 gallons.

Gastonia, 22,000.

Gals. per Month	Per 1,000 Gals.	Total Bill
First 20,000	27¢	$5.40
Next 20,000	25¢	10.40
" 20,000	23¢	15.00
" 20,000	21¢	19.20
" 20,000	19¢	23.00
" 100,000	17¢	40.00
" 100,000	15¢	55.00
" 100,000	13¢	68.00
" 100,000	11¢	79.00
Over 500,000	10¢	

Minimum, $1 per month.

High Point, 34,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 400	24.75¢
400 to 1,300	22.33¢
1,300 to 2,600	20.68¢
2,600 to 4,000	18.15¢
4,000 to 5,300	16.5¢
5,300 to 6,600	14.85¢
6,600 to 13,300	12.43¢
13,300 to 26,600	10.67¢
26,600 to 40,000	9.9¢
40,000 to 66,600	9.075¢
Over 66,600	8.25¢

Minimum, 75 cents per month.

Kernersville, 2,000.

Gals. per month	
First 2,500	$1.00
	Per 1,000 Gals.
2,500 to 10,000	35¢
10,000 to 50,000	30¢
50,000 to 100,000	25¢
100,000 to 200,000	20¢
200,000 and over	15¢

Kinston, 12,000.

Gals. per Month	Per 1,000 Gals.
Up to 10,000	31½¢
10,000 to 20,000	26¢
20,000 to 30,000	24¢
30,000 to 40,000	23¢
40,000 to 50,000	22¢
50,000 to 60,000	21¢
Over 60,000	20¢

Minimum, 75¢ per month, allowing 2,000 gallons.

Leaksville, 3,000.

Gals. per Month	
First 3,000	$2.50
	Per 1,000 Gals.
Next 7,000	40¢
" 15,000	35¢
" 75,000	30¢
" 200,000	25¢
" 200,000	20¢
Over 500,000	10¢

Mt. Airy, 7,500.

Gals. per Quarter	Per 1,000 Gals.
First 40,000	30¢
Next 20,000	23¢
" 15,000	16¢
Over 75,000	12½¢

Minimum, $3 per quarter.

New Bern, 15,000.

Gals.	Per 1,000 Gals.
First 10,000	25¢
Next 10,000	20¢
" 10,000	18¢
" 10,000	16¢
" 10,000	14¢
" 50,000	12¢
" 100,000	10¢
" 500,000	9¢
Over	8¢

Raleigh, 40,000.

Gals. per Month	Per 1,000 Gals.	Total Bill
First 25,000	30¢	$7.50
Next 25,000	28¢	14.50
" 50,000	26¢	27.50
" 100,000	22¢	49.50
" 100,000	18¢	67.50
" 100,000	16¢	83.50
" 100,000	14¢	97.50
" 500,000	12¢	157.50
Over 1,000,000	12¢	

Minimum, $3 per quarter, allowing 10,000 gallons.

Rocky Mount, 18,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 800	$3.00
Next 1,200	20¢
" 48,000	15¢
" 50,000	12½¢
Over 100,000	10¢

Salisbury, 20,000.

Gals. per Quarter	Per 1,000 Gals.
0 to 10,000	30¢
10,000 to 50,000	25¢
50,000 to 100,000	20¢
Gals. per Month	
Less than 100,000	20¢
100,000 to 200,000	18¢
200,000 to 300,000	16¢
300,000 to 400,000	15¢
400,000 to 500,000	14¢
Over 1,000,000	10¢

Minimum, $2.25 per quarter.

Wake Forest, 2,000.

Gals. per Month	
First 3,000	$1.50
	Per 1,000 Gals.
Next 5,000	45¢
" 12,000	35¢
" 15,000	25¢
Over 35,000	20¢

Wilson, 15,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft
First 1,400	$2.50
Next 8,600	1.65
" 20,000	1.40
Over 30,000	1.20

Minimum Charges

Size of Meter	Per Quarter
¾"	$3.00
1"	6.00
1½"	12.00
2"	21.00
3"	36.00
4"	60.00

(To be continued in the November issue)

Maryland Plans Rock Creek Park Extension

By IRVING C. ROOT

CHIEF ENGINEER, MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

THE extension of Rock Creek Park into Maryland is one of the many important projects now under way for the beautification of the National Capital.

Rock Creek Park, within the District of Columbia, is recognized throughout this country as one of the best examples of naturalistic park development. A similar opportunity for park development awaits in Maryland, where the upper reaches of Rock Creek flow through flower-strewn meadows and dense woodlands. Occasional rocky cliffs and marshes contribute their own particular charm and type of plant life. In fact, the valley of Rock Creek is so favored by nature that the problem of the landscape architect is preservation rather than embellishment.

Will Embrace 650 Acres

According to plans for this important park project prepared by the Maryland-National Capital Park and Planning Commission, the new park in Maryland will join the present Rock Creek Park at the District of Columbia line and extend in a northwesterly direction to the village of Garrett Park, a distance of six miles. An area of 650 acres is embraced within this project.

The new park will provide many park and recreational features, such as 18 holes of golf with club-house, athletic fields, tennis courts, playgrounds, swimming pools, picnic grounds and bridle-paths. An extensive artificial lake east of Connecticut Avenue will be made useful and attractive with boating, piers, and water gardens.

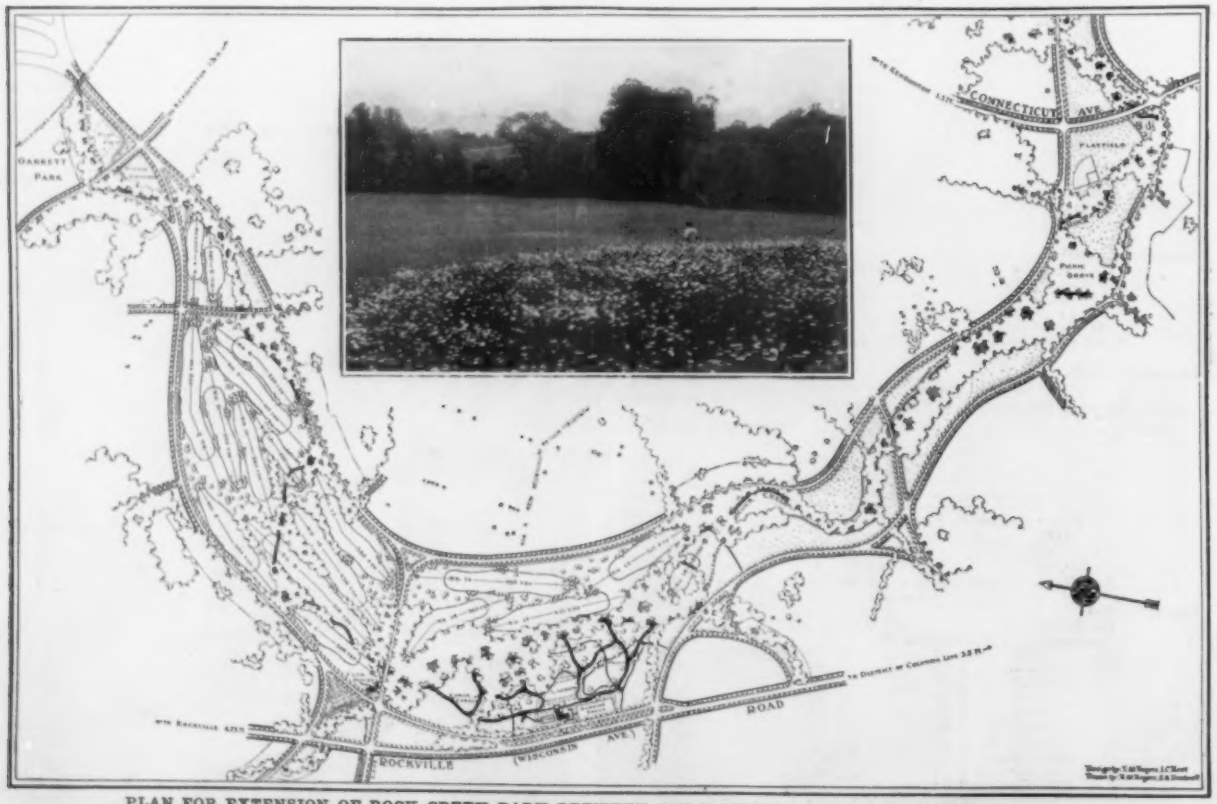
The entire park area will be bordered by boulevard drives for which rights-of-way 100 feet wide are being secured. These bordering drives will give access to the park area and also provide very attractive frontage for residential development. Realizing the desirability of park frontage, a number of property owners along Rock Creek have offered substantial dedications of acreage to the Park Commission. This fine spirit of cooperation will hasten the construction of the park project and very materially reduce the cost.

Attractive residential development of the park frontage is assured on account of the strict subdivision and building control exercised by the Commission. Appropriate setback building lines, lot sizes and protective restrictions will be required when the land bordering the park is subdivided. All park frontage is at present restricted by zoning ordinance to single-family residential use.

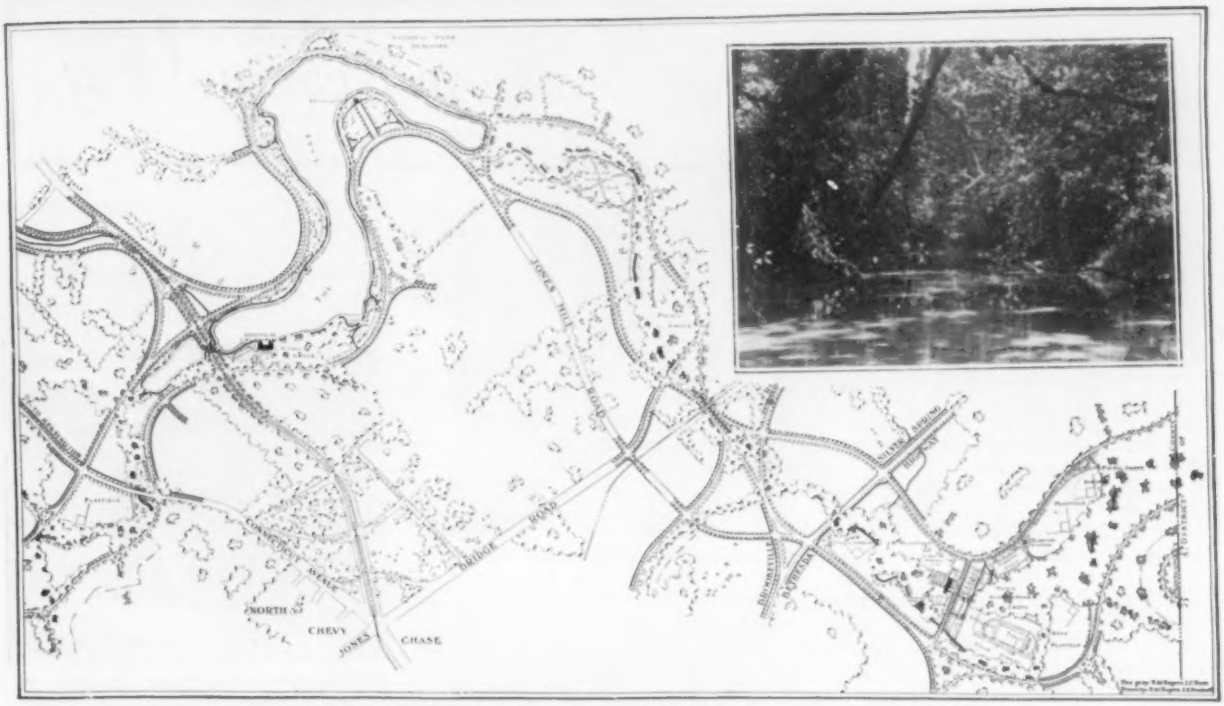
The park development will be financed by a Maryland-Washington Metropolitan District bond issue, which, together with funds on hand, will provide $650,000.

$650,000 for Park Development

The 1927 session of the Maryland Legislature provided for an annual park tax levy of 7 mills on all property within that portion of the Maryland-Washington Metropolitan District in Montgomery County. The act also authorized the Park and Planning Commission to issue 20-year bonds for park purchase or improvement not to exceed the total amount which may be retired by such a tax. The park tax, at the rate collected this year, would retire a $600,000 bond issue. Thus the Commission is free to issue bonds up to this amount when needed. The bonds will be guaranteed by Montgomery County when issued,



PLAN FOR EXTENSION OF ROCK CREEK PARK BETWEEN CONNECTICUT AVENUE AND GARRETT PARK
Inset photograph of fields and flowers shows an attractive site for part of the 18-hole golf course to be built in the new park area



DESIGN FOR THE PARK EXTENSION BETWEEN THE DISTRICT OF COLUMBIA AND CONNECTICUT AVENUE
A picturesque wooded view of Rock Creek is shown in the inset

which insures a very low interest rate. The state of Maryland has appropriated $100,000 to be used by the Commission for park purchase, this amount to be divided equally between Montgomery and Prince George's Counties. Thus the sum of $650,000 may be considered as available for park development in Montgomery County.

Why Shorewood Believes in Alleys—and How It Plans Them

By H. A. SCHMITT
VILLAGE ENGINEER, SHOREWOOD, WIS.

THE village of Shorewood has adopted the policy of requiring alleys in all new developments where lots are 60 feet or less in width. We have found that alleys have many serviceable features. They have proved invaluable in their ability to cut off the flow of free surface water draining from higher lots on one side of the block to the lower lots opposite.

Alleys also serve to increase the esthetic appearance of a residence street by making it unnecessary to build a slab of pavement leading from the curb at the front of the lot to the garage at the rear. With the use of alleyways this space can be used for shrub and flower development, which will enhance rather than detract from the beauty of the home.

Alleys Speed Improvement Work

In municipalities where trouble is experienced in having special improvement work keep pace with building activities, alleys are exceptionally helpful because they can be built almost immediately after the plat has been approved, since it is unnecessary to wait until underground work has been installed as in the case of roadways. This allows the builders to get their materials on the lots and proceed to build while the improvements are being constructed in the streets.

Alleys also help to eliminate the hazards connected with the use of driveways from which, because of insufficient room to turn in the rear of the lot, nearly everyone must back out, with grave danger of hitting someone on the street sidewalk or of colliding with another car on the roadway.

We find the initial cost to be much less in building alleys than in building driveways. Assuming an alley 20 feet in width, a lot 50 feet in width, a driveway 125 feet in length, and the cost of pavement at $2 per square yard, we have for the cost of the alley $111.11 and for the cost of the driveway $222.22.

We have also found that with the use of alleys, considerable saving can be effected in the cost and annoyance to the residents of collecting garbage and ashes from the homes.

It is necessary that the alleys be improved as soon after the platting of the land as possible. This will eliminate the possibility of garages being built without regard to the future grade of the alley or being built to face the street with total disregard to the alley. The alleys will be used by every property owner on them who has need for garage facilities, providing that the alleyways are improved immediately with some type of permanent pavement.

Alleys Made Attractive

Some attention should also be paid to the esthetic arrangement of the alleys. In Shorewood we require an alley to be 20 feet in width and the garages to have a uniform setback of 5 feet from the alley. In this 5-foot area a tree is planted on each lot at the property owner's expense. Before the plat is made of record, we have an agreement with the subdivider which gives the village the right to replace any tree on private property when necessary and assess the cost to the property owner.

With these esthetic and serviceable features, an alley is made a valuable adjunct to a village or city plan.

Pictures and Paragraphs from Near and Far

Why Detroit Is Concerned Over the Safety Zone Problem

THE accompanying photograph indicates graphically why Detroit has felt it necessary to resort to a spectacular campaign to reduce the number of accidents in safety zones. (See THE AMERICAN CITY for April, 1929, "Detroit Continues Its Traffic Experiments," by H. M. Gould, pages 145 and 146.)

This automobile, driven by Joseph A. Carey, a building contractor, crashed into a protected safety zone at Hastings Street and East Jefferson Avenue. Mr. Carey was critically injured, and what happened to his car is quite obvious. Police advanced the belief that he dozed off while driving and failed to notice the marked zone. An unidentified witness pulled Carey out of the wreckage where he was pinned under the steering wheel, which had been bent by the collision.

Last year, 160 vehicles which hit protected safety zones in Detroit killed 6 persons and injured 208. There were also 89 vehicles which struck these zones but did not injure the occupants of the cars.

Mail Service for Motorists

A MAIL service designed especially for the convenience of motorists has been working satisfactorily at Sharon, Pa. The unique plan provides letter boxes, as shown above, so located as to permit the autoist to drive up and deposit letters without leaving his car. The boxes are of the usual type, but by being raised and located just inside the curb, facing outward, permit usage only by people who do not wish to leave their cars when depositing mail. The amount of mail collected from these special boxes has demonstrated that they are performing a real service, according to postal officials.

MOTORISTS' LETTER BOX, SHARON, PA.

WHY DETROIT IS CONCERNED OVER THE SAFETY ZONE PROBLEM

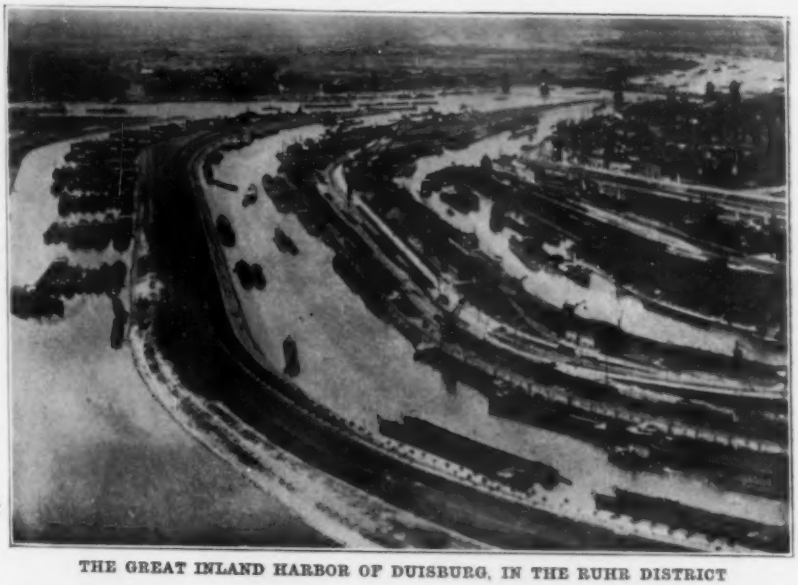
German City 800 Years Old Claims the World's Greatest Inland Harbor

DUISBURG, Germany, which received its city charter 800 years ago last March from the Saxon king, Lothar III, is reputed to have the world's greatest inland harbor. More than 30,000,000 tons of freight are handled each year through that port, which serves chiefly as a shipping point for coal from the famous Ruhr district. From Duisburg, the coal ships go up the Rhine as far as Aschaffenburg on the Main, and downstream to Rotterdam and Antwerp.

The Rhine-Main and Rhine-Rhone canals and small Holland canals and other waterways carry the products of the Ruhr far into the interior of Europe and to other continents.

The town actually dates back further than the year 1129, when it received its city charter. During the time of the Romans, that section also served as a shipping center under the name of Dueso. Under the Merovingian kings, some centuries later, the stronghold Duesoburg was built, from which the present city derives its name. Since about 700 A.D., history mentions Deusoburg frequently as the residence of the Franconian kings, and Charlemagne often visited it. Among the city's old buildings is Salvator church, which was built in 1283 A.D. In the church is buried the famous geographer Mercator, who lived in that city.

Duisburg is but one of several German cities which this year are celebrating ancient birthdays. Meissen, home of "Dresden china," is 1,000 years old and is to conduct impressive ceremonies this summer. Brandenburg, which at one time nearly became the capital of the German Empire, is also a millennial city.



THE GREAT INLAND HARBOR OF DUISBURG, IN THE RUHR DISTRICT

Making Lakes Clean for Swimmers in Schenectady

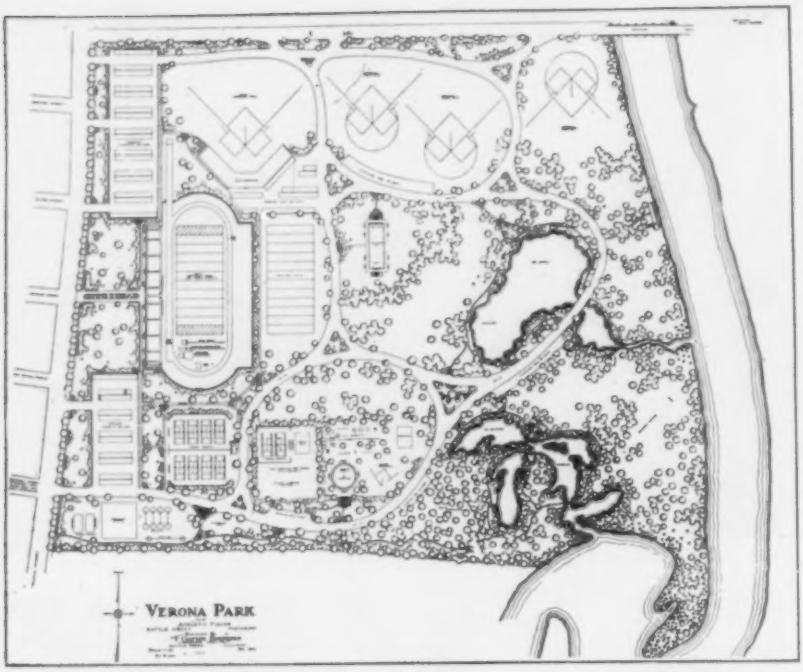
SAFEGUARDING the health of swimmers in Schenectady, N. Y., is a matter of municipal concern. As evidence of this, the city operates a chlorine boat shown in the illustration. This boat is used on Iroquois Lake in Central Park of that city, to disinfect the water in which thousands of children from the public playgrounds swim during the outdoor season. While such precautions as this are taken in most municipal swimming pools, it is probably unique to find a city taking the time and trouble to disinfect an entire lake as is done in this instance.

CHLORINE BOAT IN OPERATION ON A LAKE IN SCHENECTADY, N. Y.

Fullerton Greets Visitors from Railroad Bridges

SOME cities are particularly adept in turning a supposed disadvantage into a distinct benefit. Thus, Fullerton, Calif., is using the depicted railroad bridge over the highway as a means to welcome visitors. In doing so, the beauty of the particular scene has not been defaced in any way and the bridge is serving as a means of community advertising that cannot but prove appealing to visitors.

A RAILROAD BRIDGE ACTS AS AN ARCH OF WELCOME



NEW PARK DEVELOPMENT AT BATTLE CREEK, MICH.

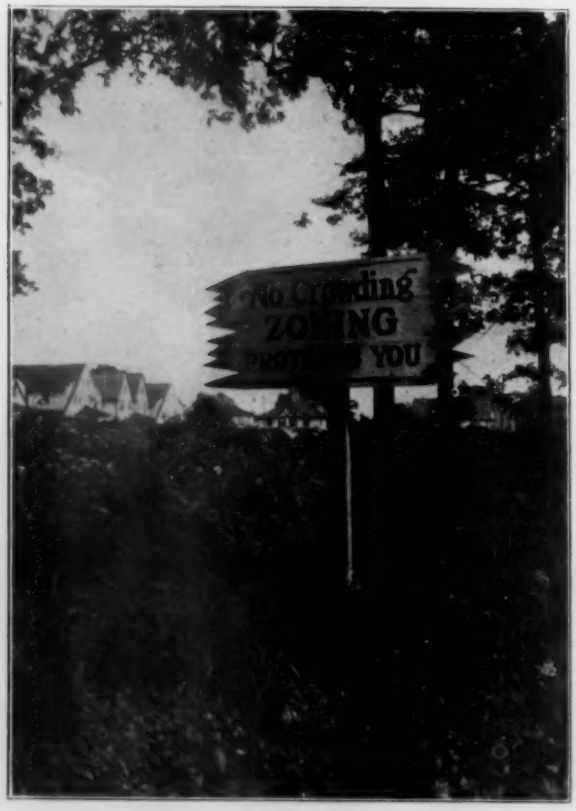
Verona Park at Battle Creek is to be one of the outstanding features of an extensive recreational development. Its site constitutes one portion of a considerable acreage purchased by the municipality for water rights and is adjacent to the Battle Creek River. It also is directly opposite a large acreage on which the Verona pumping station is located and on which a highly developed municipal golf course has been completed. The plan for this entire project has been officially accepted and the construction work probably will be carried on by the use of current funds. Such procedure is in keeping with the policy of the city in connection with the realization of its other improvement plans

BERLIN ADOPTS HUGE TIME-TABLES FOR BUSSES

Large time-tables, giving the schedule of stops and operation time of important bus routes, have been installed on posts at a number of the chief transfer points in Berlin, Germany. An idea of the size and detail of these bulletin boards may be gained from the accompanying photograph of the first of these signs, at Opernplatz. The routes are designated by the large numbers at the head of each column with the various streets and squares listed below, and the time schedule at the bottom

ONE WAY OF SELLING A ZONED SUBURBAN TRACT

An enterprising Philadelphia realtor believes that he can sell certain lots by emphasizing the fact that they are in a zoned section. Following out this idea, he has erected the unique sign shown on this page, to attract attention to that desirable feature of his real estate development, protecting it from congestion and inappropriate structures and uses. This particular view was obtained in a suburb of Philadelphia and is shown here by courtesy of the City Parks Association of Philadelphia

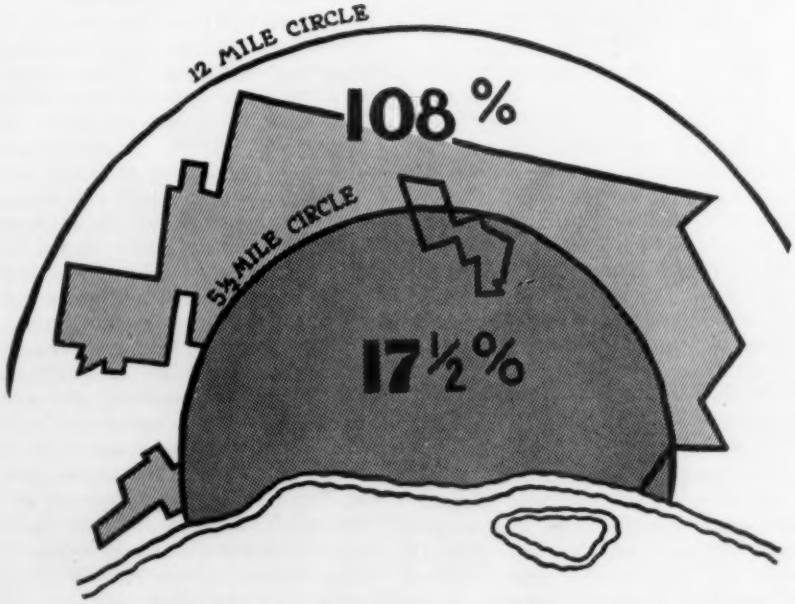


THE PENALTY OF RECKLESS DRIVING ON A NARROW STREET

This instance of a not uncommon type of accident occurred in Philadelphia and was the direct result of careless driving. The taxi on the right was parked against the curb of a narrow street, leaving little space between it and the street-car. Along speeds the truck, the driver, either hoping to beat the car past the taxi or else misjudging the width of the street at that particular spot, heading into the narrow lane available. As a result, the truck is jammed in between the taxi and the street car, both machines are damaged and traffic suspended until they able to extricate themselves

PEACE BRIDGE ACROSS THE NIAGARA RIVER

This long bridge, opened to traffic last year, embraces several new features. Two lighting principles are employed with Westinghouse Holophane units of 4,000 lumens used throughout. On the curved approaches the light is broadly diffused by Superlux refractors. On the bridge itself, the light is concentrated and directed by Bi-Lux refractors. The accompanying view is looking toward Buffalo, N. Y.



Land values increase six times as fast in the outskirts as they do closer in

A LESSON FOR MUNICIPALITIES FROM REAL ESTATE EXPERIENCE

John Jacob Astor when discussing real estate values is reputed to have said, "Buy on the fringe and wait." He was cognizant of the fact that real estate often increases in value more rapidly near the fringe than it does near the center of the city.

If this advice is sound for realtors—and the accompanying chart made by a Detroit real estate firm would so indicate—why should not cities reserve sites in their outskirts for schools, parks, playgrounds and other municipal improvement projects while land values are low? As the result of the steady growth of cities in the United States, thousands of municipalities are encountering difficulties in securing the sites necessary for the expansion of their educational, recreational and civic facilities.

A few cities have been farsighted enough to reserve such land and now are enjoying the fruits of their wisdom. In most instances, however, city officials are being forced to purchase property for public purposes at very high prices. Many railroads also are regretting that they failed to provide for transportation expansion by acquiring sites for additional trackage and new terminals on what was once considered the "fringe." Municipalities might well consider that fact when planning for future airport development

The Use of Blast-Furnace Slag in Bituminous Road Construction

By C. E. IRELAND

VICE-PRESIDENT, BIRMINGHAM SLAG CO., BIRMINGHAM, ALA.

IN many sections of the United States, especially in the southeastern states where frequently it is not economical or sometimes advisable to build the more expensive types of hard-surfaced pavements, various forms of bituminous slag construction have proved valuable, particularly where local materials are available for the base construction, but are not satisfactory for use in the wearing surface. The principal use of blast-furnace slag in bituminous construction has been in the mineral aggregate in the wearing surface of bituminous macadam and in the surface treatment of waterbound slag and stone macadam, chert, clay-gravel, sand-clay, top-soil, shell and lime rock, although large tonnages have been used in bituminous concrete and in binder courses for sheet asphalt.

Nature of Slag

Air-cooled blast-furnace slag is a road metal which, for the past twenty years in the iron and steel districts of the United States, has been widely used for the building of waterbound, clay-bound and traffic-bound macadam, bituminous macadam and bituminous concrete roads and streets. Crushed and screened slag used with bituminous materials has given excellent results. The very nature of the slag, which is porous, yet tough and sharply angular and which almost always breaks nearly cubically, suggests particular reasons why this material does give satisfaction in bituminous construction. With slag, bituminous binder has a rougher and greater surface area for adhesion than is possible with other mineral aggregates. Likewise, its cubical shape assures an interlocking of the metal and a mechanical bond under the roller. Slag, therefore, is considered by many highway engineers in the Middle West, in the East and in the South, as ideal mineral aggregate for use in bituminous macadam, bituminous surface treatment and bituminous concrete.

Bituminous Macadam Construction

More than 1,500 miles of bituminous slag macadam streets and roads are carrying heavy traffic in the United States, the states of Ohio, Indiana, Illinois, Michigan, West Virginia, Virginia, New York, New Jersey, Alabama, Florida, Georgia, Louisiana and Mississippi having used this type of bituminous construction since 1905. During the last thirteen years the five southern states have built 668 miles of bituminous slag macadam. More than 20 per cent of this, or 172 miles, forms a part of the highway system of Florida, while Georgia has 362.9 miles, Alabama 119.8 miles, Louisiana 4 miles and Mississippi 9.4 miles.

Method of Construction

Most of the bituminous macadam in this country has been laid by penetration method, using two or three applications of bitumen placed with pressure distributors and usually three different sizes of crushed and carefully sized slag, the coarsest of which is graded uniformly between the allowable size limits and is practically free of fines passing a ¾-inch screen. The standard sizes used in this construction are No. 2 (1½ to 2½ inches) for 3-inch wearing surface and No. 23 (¾ to 2½ inches) or No. 3 (¾ to 1½ inches) when thinner courses are specified. For choke No. 4 (¾ to ¼-inch) is generally used and No. 46 (¾-inch to 10 mesh) or No. 6 (5/6-inch to 10 mesh) have proved ideal for the seal coat.

Inverted Form of Penetration Slag Macadam

Economic necessity some ten years ago was responsible for the development in Florida of a series of inverted forms of penetration macadam. Florida possessed no mineral aggregate suitable for use in bituminous construction, but was rich in acceptable lime rock for base construction. In order to reduce the cost of road construction by building a thinner wearing surface, using slag at the same time, to allow the use of excellent Florida lime rock for base, types of penetration macadam surface treatment were devised which made it possible to build more miles of better road with the money available.

In Orange County, a bond issue of one million dollars was voted some fifteen years ago for brick road 9 feet wide laid on sand. The second bond issue in 1922 covered only 4 miles of brick, the remainder being 35 miles of asphaltic concrete, 8 miles of sheet asphalt with slag binder and 11 miles of slag surface treatment, all laid on lime-rock base. The seven-million-dollar bond issue passed in 1926 is being spent for slag surface treatment wearing-surface on lime-rock base. Marion County, using local lime rock in 6-inch and 8-inch base has completed approximately 181 miles of a proposed program of 378 miles of slag surface treated roads at an average cost of $15,064 per mile.

Surface Treatment

Probably the widest use of slag for bituminous surface treatment is in the southern states, where 3,245 miles of slag surface treated roads and streets are giving satisfactory service. Allowing 10,560 square yards per mile, Florida has 2,942 miles of the non-skid low-cost pavement, in 44 counties.

Bituminous Concrete Construction

The second type of bituminous slag construction is that of bituminous concrete. Asphaltic concrete pavement is one having a wearing source composed of a mechanical mixture of asphalt cement with a coarse aggregate with or without sand and mineral filler. The characteristic features of slag with its rough angular exterior make it an excellent material for the asphaltic mix. The further fact that with few exceptions slag comes from the plant clean, free from dust coating and foreign substance, makes it a desirable material. More than one thousand miles of asphaltic slag concrete, some of which has been in service for 15 years, and is giving excellent results in 18 states.

The Georgia Highway Department has been developing a new "mixed on the road" method of reducing the cost and improving the quality of bituminous macadam. An experimental stretch 33.2 miles long runs between Waycross and Dupont in Ware and Clinch Counties. On this road the slag and other aggregates were mixed with cold asphalt on a clay gravel base with a highway maintainer. The experiments have shown the practicability and advantages of surface mixing and have developed several satisfactory types of bituminous concrete surface. A claim is made that the usual difficulty encountered in completely coating the aggregate by penetration is overcome by this method.

The American Mayor Through Chicago Eyes

A Formidable Task for Which Many Are Called, But Few Qualify

By CHARLES EDWARD MERRIAM
PROFESSOR OF POLITICAL SCIENCE, UNIVERSITY OF CHICAGO

THE American mayor is an unusual specimen in city government, and an experiment of a most unusual kind, as the cities of the world go. There are Lord Mayors and Burgomasters, a-plenty of them, but the American mayor and the Chicago mayor must be something of both, and more than that; and he must be chosen as neither of these by the electorate in a swirling political flood. What are the tasks of the office and what manner of men survive? . . .

The mayor of Chicago is the city's most impressive showpiece; he is its chief personnel agent; he is its chief manager; he is its chief lawmaker, its chief financier, its diplomat, its leader; all in one; or he should be, if he did all that is expected of him. Which of these roles he will play and which the city will best enjoy, depends upon the man and the occasion.

It would be a man's job to welcome distinguished guests, the queens and princes and potentates and adventurers and heroes of earth and air and water. If he accepted all the pressing invitations to dine and speak with important groups, he would never need food at home; nor would his voice ever be at rest. The convention bureau of the Association of Commerce alone could utilize his full time and make him weary at the end of the day.

He must select men for the most important administrative responsibilities in the city's service—health, fire, police, public works, finance, law, and on him rests the choice of members of the Board of Education and the Public Library Board; and, more than all this, he must choose the personnel board of the whole municipal service, the Civil Service Commission, to say nothing of many important boards and commissions for special purposes. City manager he is also; for he must supervise these heads of departments and through them direct the general course of the administration, and create a type of public service.

Lawmaker also, for he may veto acts of the Council, and through his patronage and his prestige control them. He may initiate laws and will do so many times. Diplomat he must be, representing the city in unending conferences between social groups, and between governmental groups also. More than this, he must be in a sense a leader to fulfill the high trust reposed in him by his community. Interpreter of the city he must be, but also an interpreter who will point the way at times, who will initiate and suggest at times, subject to the approval of those he represents. More than this, he must be in a certain sense a symbol of the city. Vague this may seem, but tangible in that it connotes the kind of man or type of man the city wants to think of as its spokesman.

His power is not limited by his authority, but by his prestige; and his duties are not limited by the law, but as broad as the occasion. More than any other of its citizens he may become an industrial and cultural liability or asset of the community at home and abroad. If he is chosen, his aptitude for all these duties may be considered, and his performance of them will be qualified by the thought of another campaign in which these problems will again be raised.

A formidable task is this, and there are few who pass all the tests in Chicago or outside, of the experts and the public alike. But the same observation may be made of governors of states and presidents of the nation itself; for the elective executive is an experiment, and for cities a dubious one, which many have abandoned for the experiment of the city manager. . . .

All too great is the danger that he may turn out to be some gallant figure of a man, whose amiability is a cover for futility or worse; or some more austere and narrowly efficient one-termer, inefficient in the larger things the dollar sign does not so readily measure; some mediocrity aspiring to position and willing to purchase it at the price Faust paid to Mephistopheles, his soul harrowed by the struggle to serve both God and Mammon in the same term. But now and then emerges a figure in whom nobility and power are combined, and whose leadership adorns the city.

No one should be harsh with mayors, for their task is an impossible one, and we have made it so, not they. . . .

ADMINISTRATION is an organ with many keys, and many tempos and varying volumes of sound; and skill lies in the combinations that produce harmonious music. It is not enough to strike some of the keys and to be loud and strong. It is easy to be firm alone, or amiable alone, or efficient alone in the narrower sense, or inventive alone. These are all important, but they must be played together or discord will be the result. Particularly is it difficult to play a duet with the party organization whose ideas of harmony and time

"Chicago—A More Intimate View of Urban Politics"

is the title of Professor Merriam's new book (copyright, 1929, The Macmillan Company, New York), excerpts from which comprise the accompanying article. The book attempts to make clear the workings of the political machinery of America's second city, and it succeeds in doing so in a remarkably clear and interesting manner.

The author is no mere theoretical observer of the events and trends regarding which he writes; for he saw and took part in the workings of the city government as an Alderman from the Seventh Ward in 1909-11 and again in 1913-17.

Professor Merriam sees in the present trend toward emigration to the suburbs one of the greatest difficulties in securing good government in our metropolitan cities. "Emigration from Chicago," he points out, "has been a more difficult problem than immigration into Chicago." And as he also well says, food, shelter, clothing, adornment and recreation occupy the chief place of interest and thoughts of the 800,000 families of Chicago, rather than the activities of gunmen or the exploits of imperial city builders.

But the Alderman-Professor is optimistic for the future: "Stained with graft and corruption as some of the early stages of this development were, they nevertheless mark the beginnings of a revolutionary change in the city's attitude toward itself. Elaborate parks and boulevards were the outward expression of an inner transformation in the spirit of Chicago from that of drift to that of mastery, from haphazard growth to directed plan, from real estate booming to city building in the broadest sense of the term. Zoning followed the Plan, as housing began to follow zoning, in the city's attempt to organize its life."

If the reviewer may select a single sentence from 305 pages as epitomizing the book, it is this (from page 196):

"The demagogues and spoilsmen win battles, but they lose the war."

may be found confusing.

The theory of the elective mayor system is that it will provide an element of leadership for the city, a form of leadership in which will be fused the elements of political organization, legislative dominance and administrative supremacy. But few there are who can combine all these qualities in one person, and produce the necessary pattern of political behavior, in Chicago or elsewhere. The city hall is too small to build a political organization, as all those who have tried it have discovered, and too big to be bossed from the outside. The consideration of large policies for the city is an engrossing task, requiring special aptitudes, experience and leisure for mature reflection; and few can find this formula. The administrative service is large and complicated and its problems incessant in their demands for attention, and few know the material with which they deal or have the qualities requisite for success in this slippery field. The combination of all these abilities is extraordinarily difficult, and thus far Chicago has not found a Roosevelt or a Wilson, or a Hoover or a Smith, or a Tom Johnson or a Mitchel, or a Couzens or a Hoan, or a Brand Whitlock or a Golden Rule Jones. After all, the mayorality is not a career for which one may prepare with some promise of achievement if aptitudes and experience are favorable. And if one were to focus his vision upon such a place through long years, it would narrow his view and distort his perspective. The mayoralty comes in an accidental way, so to speak, and the city is lucky if it finds some person who can deal with the vast responsibilities of the task.

Above all else, a continuously elective mayor must catch and interprete that subtle and intangible but solid and irresistible thing vaguely known as the spirit of the town. This is something more than the details of administration, or appointments or ordinances or consistent and statesmanlike qualities. Peculiarly difficult to catch this is, for there is something much like it which is poisonous, the momentary fancy of the community which a showman may seize but a statesman will avoid. The spirit of a city is made of traditions and aspirations, of interests and experiences, to which symbols and attitudes and types of behavior are adapted and incarnated in personalities.

This lies deeper than the negatives, which the politicians often understand very well, the things to avoid in conduct, or the positive amiabilities to be cultivated. It lies in an intuitive or, if you like, synthetic sense of the course indicated by the equilibrium of social forces and traditions and hopes, but it is not reasoned out that way. It is not something that can be learned by rote, but must be felt and reasoned as well. Carl Sandburg, for example, might catch the spirit of the city, and interpret it poetically but not politically, as he has done in a way in "Smoke and Steel." . . .

Well, then, must a mayor be a poet? Nonsense, he must not have long hair or dreamy eyes. He must be hard-boiled and practical, dealing with grim, stark realities of daily life. He must know what the people themselves do not know, namely, what they want, expressed in personality and conduct, in human form. Bad luck to him if he guesses wrong, but if he knows the city and is not deflected too far by personal or special group advantage, and if he has this special faculty of political divination, he will most of the time guess right, or perhaps more accurately a batting average of .300 is considered excellent. And he cannot escape responsibility by never guessing, or accepting a chance. During four years there will be many crises, and he must act. Disasters, industrial disturbances, epidemics, tense moments in urban life when great policies are shaped, or when trifling ones cut across the grain of the community. Emotions rooted some of them in 300,000 years of race experience and some of them thirty years and some of them without precedent, must be felt and interpreted in these tension times. . . .

THE channels are full of the reefs and shoals of hatreds and aversions with which men's minds are filled, and navigation is difficult enough at any time. But when the storm comes, still more perilous. But this is just the time when the pilot is needed and he cannot leave the vessel, and if he is a brave leader will not want to.

But who knows in the years that are to come what noble figure may arise to lift and swing the great sword of the city, too heavy for ordinary hands; or what prophet may come to win men's hearts in other and milder ways; or Solon richly endowed with political wisdom; figures to brighten and adorn the city, to polish its granite, to release its untold possibilities for finer forms of beauty and of power? . . .

ALLOW me to register a protest against the attitude that makes of vice and crime and graft a thing apart from our own human life, as if they were not an integral cross-section of the life of our community and our society. There would not be bribe-takers, if there were no bribe-givers; there could be no collections from prostitutes if there were not a wide market for prostitution; nor from bootlegging if there were not patrons of the industry; nor grafters in government if there were none in business or labor.

It is too simple, and often too hypocritical, to assume that all graft and crime are the acts of wilful and wicked persons entirely set apart from the superior rest of us, and by the same logic that the simple remedy is the rigorous application of the criminal law. Upon this very attitude, unreal as it is, the underworld has thriven. Vivid pictures may be drawn of the breakdown of the law under certain urban conditions, and they may be truthful, but the real picture must be that of a world in reconstruction, under new conditions; and not merely that of the old lines fading in the new surroundings.

When Religious Bigotry Marks the Ballot, Grafters Rejoice

The raising of religious issues without warrant or relation to the actual problems of the time inevitably affects city government detrimentally, and those who stir the embers of religious rivalry and bitterness, whatever their motives, serve the city badly.

I have found, what anyone with the slightest political experience must soon discover, that there are rogues and honest men in all religions, and that a man's religious confession is not a safe index of what he will do when a political crisis comes.

Colonel Roosevelt once remarked to me: "When a man asks your religion in politics, you may be sure it is for no good purpose." The famous French philosopher, Rousseau, once declared that the only persons who should be excluded from the ideal democracy were those who would not tolerate the religious beliefs of others; "for such individuals," said he, were "incapable of associating with others in a democracy." If intolerance is anywhere justified, it is toward the intolerant. I have often wished that the institution of ostracism might be revived for the purpose of applying it to the temporary exile of those who deliberately stir up the flames of religious warfare in our political affairs. Under our present form of government, I can merely express the pious hope that they may spend at least a season in the regions so graphically portrayed by the great Italian poet.

C. E. M.

Turning Little-used Streets Into Play Parks

SWEETWATER, Texas, is about to make the experiment of transforming some of its little-used and expensively kept-up streets into much needed play parks, as a result of a survey made by the City Plan Commission preparatory to drawing up a city plan.

The Committee on Parks and Playgrounds, making an intensive study of the needs of the city along these lines, found that the only available playgrounds are those in connection with the public schools. The city has one large municipal park on the north edge of town, but on account of its location it serves but a very small portion of the children in the city as a playground, while the location of the public schools is such that there is a large intervening territory having no playground facilities available. To meet the needs of neighborhood play spaces in the ordinary way, the city would have been compelled to purchase a number of sites at considerable expense.

What the Study Disclosed

The city of Sweetwater when originally platted was laid out in blocks 300 feet in length by 320 feet in depth, the lots having a depth of 150 feet with a 20-foot alley. Subsequent additions to the city, with very few exceptions, follow the same platting as to block sizes.

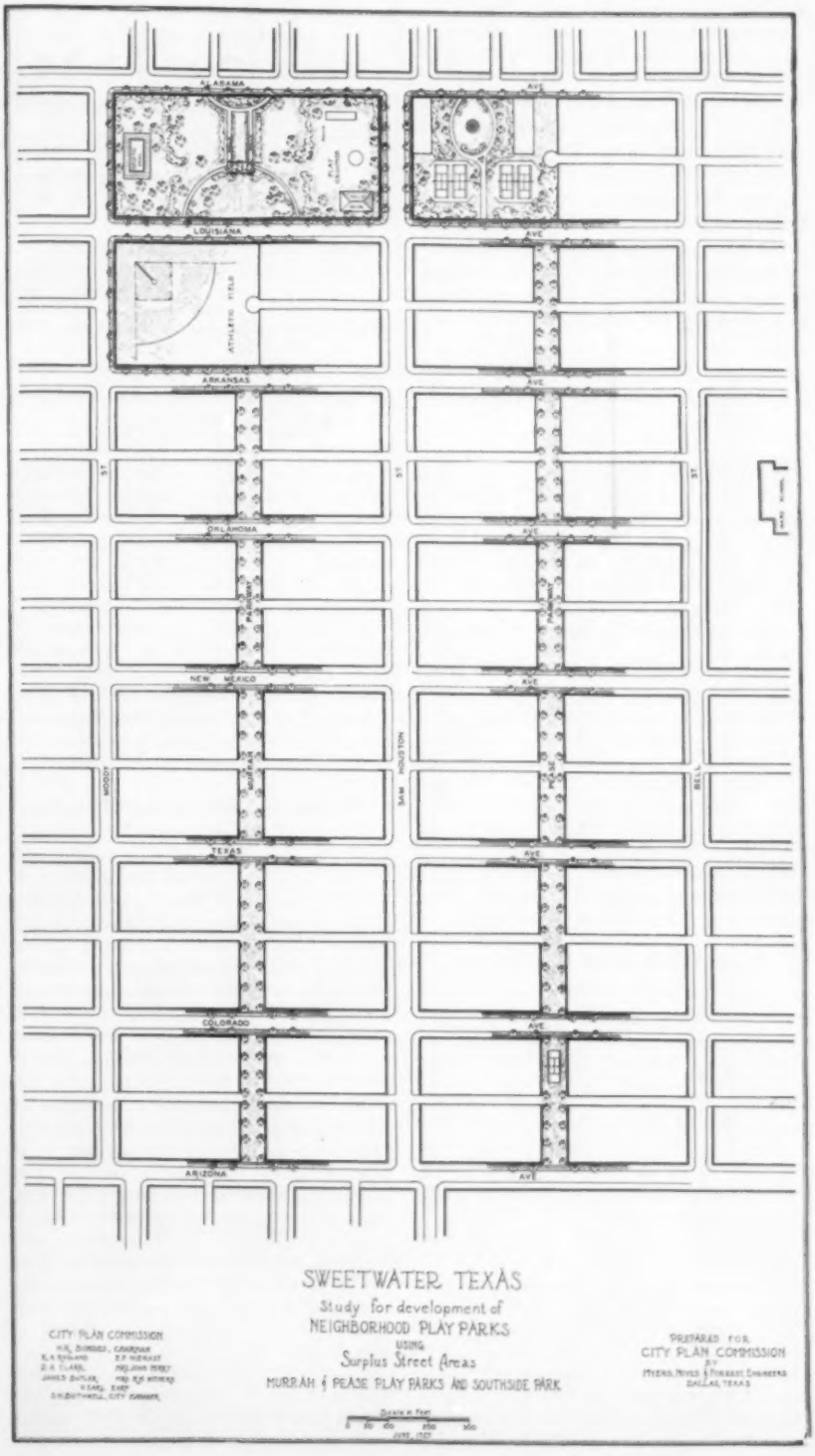
Although the main streets of the city, on business and residence frontage, are well paved, the great majority of the side streets are either unpaved or surfaced with gravel and require a very heavy maintenance expense in keeping the drainage open and smoothing up these streets after heavy rains. There is also the work of removing gravel and other material washed from the side streets onto paved streets during rainy periods.

A map of the city was prepared showing the location of all residences and all paved streets. On this map were also placed the proposed street openings and new trafficways, so that a complete layout of the city as to streets and residences was available. With this map as a basis, a study was made to see if it were possible to divert traffic from a part of the side streets, in order to relieve the Street Department of a portion of its maintenance expense, and with the thought also that these streets from which the traffic is diverted might be transformed into neighborhood play parks.

This plan has won the interest of the city authorities. The City Plan Commission, cooperating with the City Commission, the City Manager and the Park Board, has actively undertaken the development of the first units in the system and expects to establish new units as fast as neighborhood demands arise.

Through the closing of alternate streets to traffic, the block lengths for vehicular traffic will be increased from 300 to 650 feet. The street areas selected for this experiment will not be abandoned by the city, but they will be taken over at least temporarily for use as neighborhood playgrounds. Should necessity develop in the future for the use of any of these areas as trafficways, they can be released by the Park Department.

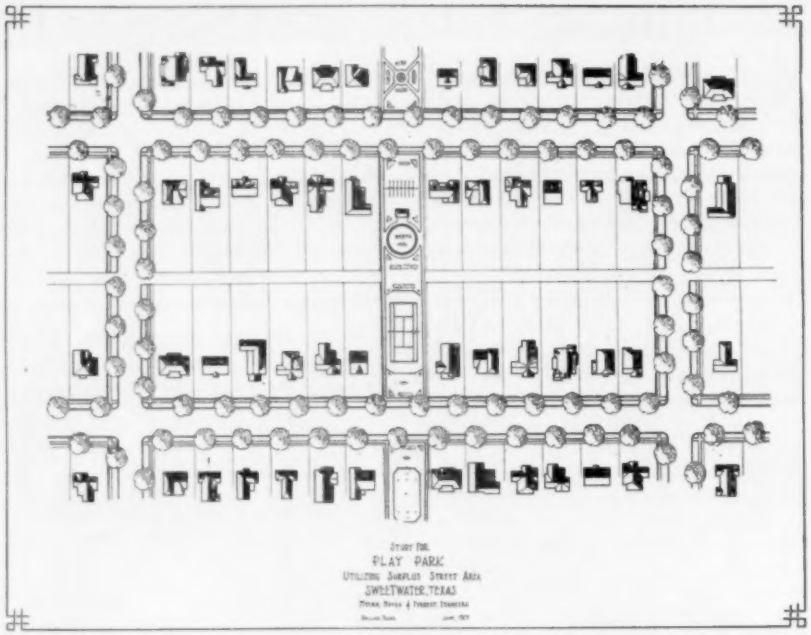
These neighborhood playgrounds will be from 50 to 70 feet in width by 320 feet in length—large enough for tennis courts, wading pools, croquet grounds,



and other activities with the exception of baseball, which will have to be confined to larger areas such as the school grounds or the larger city parks.

The substitution of a park for a street area between two adjacent blocks will remove four lots from street corners and place them alongside a parked area. Upon assurance that these parked areas will be maintained by the city, a number of property owners have already informally petitioned for such areas to be established alongside their property. The general effect throughout the city, when the plan has been carried out, will be to give the city the appearance of having an unusually well developed and extensive park system. It will also relieve the street areas for use as playgrounds by the children, thereby eliminating the hazard of injury from vehicles.

Plans for this project were developed in the office of Myers, Noyes & Forrest, engineers, of Dallas, who are preparing the city plan for Sweetwater.



New Orleans Won Its Fight Against Disease and Filth by Admitting Their Existence

HOW New Orleans was successful in correcting abuses which fostered an exceptionally bad condition of public health for many years, is outlined in an interesting manner by Thomas Ewing Dabney, historian and author, in the 1929 Red Book of New Orleans Commerce, published by the Chamber of Commerce of that city.

Only when the city was ready to admit the existence of disease and plague, brought on by unsanitary practices, rather than attempting to hide them and make light of them, was definite progress possible, Mr. Dabney points out. In fact, the writer intimates that unless every municipality faced by unsanitary conditions is willing to admit their existence and then to arouse the public in support of an intelligent and persistent crusade to eliminate them, no relief can be expected.

Early Indifference to Unhealthy Conditions

New Orleans endured almost every possible form of fatal disease, including yellow fever, cholera and bubonic plague. From 1880 to 1899, the average span of life in that city was less than 37 years, but since 1920 it has been prolonged to 56 years. Speaking of the appalling epidemics which swept the city intermittently from 1796 to the middle 80's, Mr. Dabney says:

"They knew not what to do, the men and women of New Orleans who laid the foundations for this city and who continued to build in spite of everything. There were physicians who solemnly held that the filthy streets and gutters developed an atmosphere inimical to plague. But it was not until the 50's that the city, through Mayor Stith, even admitted responsibility for the public health. His pronouncement was merely a rhetorical gesture. After 1839, there was some attempt to quarantine and disinfect ships at the mouth of the river; the childish methods first employed did no real good. Later, they were improved; and with continued observation and study might have been developed into a system really efficacious; but the fear of 'hurting the town' raised its morbid head and frowned away the measures that would have helped. To this deadly complex, more than to the direct infection, was due the fearful yellow fever epidemic of 1853."

Meeting and Killing the "Hurt-the-Town" Ogre

To Dr. Joseph Holt, who became the head of the reorganized State Board of Health in 1884, Mr. Dabney gives primary credit for instituting the effective public health program which has brought such startling relief. In addition to advocating intelligent methods of combating disease, Dr. Holt is reputed to have insisted on facing the problem squarely and tackling it openly. Mr. Dabney says of him on this particular point:

"He insisted on truth in reporting all communicable disease, and on immediate and sweeping measures in meeting every possible threat. If ever a man of New Orleans deserved a monument, Dr. Holt does, not only for his scientific contribution, but also for the fearlessness with which he met the hurt-the-town ogre and put him to rout. Under him the city made its first real step in sanitary progress. He continued on the Board of Health until 1888, and as long as his policies were strictly carried out, New Orleans was kept free of yellow fever. The epidemic which broke out in 1897 started from an infection on the Gulf Coast after it was well known that the disease existed there. That visitation was the gift of the hurt-the-town brigade, which prevented a prompt and effective quarantine, lest somebody might hear about it and come to the conclusion that there was danger of yellow fever.

Notable Drop in Death Rate Follows Sanitation Work

"Dr. Holt did not care how much he hurt the town, and so it was that the measure he put into effect stopped the wild fluctuations in the death-rate of New Orleans. The average dropped to 28.6 per 1,000 by 1889 and 27.2 by 1899, and took a more rapid drop with the turn of the century, when New Orleans was given a pure water-supply, when the sewage problem was solved, and when drainage cleaned out the waterlogged, disease-breeding ground, and swept away the incubators of pestilence in the surrounding swamps. The United States Public Health Service did not fear to hurt the town when the city turned over to Federal control the yellow fever problem after the epidemic of 1905, and so rid New Orleans of this menace."

As additional evidence of the steady progress New Orleans has made in public health, Mr. Dabney relates that from January to August, 1927, the white death-rate in that city was but 13.59 per 1,000, and the negro death-rate, 29.95; giving a figure for both combined of 17.79. This figure embraces non-residents, including thousands who are brought to New Orleans from a wide expanse of territory for treatment, many of whom are beyond assistance when they arrive. Non-residents excluded, the total average death-rate was 14.19 per 1,000, and but 10.69 for whites alone.

Hydrant Rentals and Sprinkler Charges—Part II

A Study of Rentals for Private and Public Fire Hydrants in Various Cities with Data on the Charges Made for Connection for Private Standpipes and Sprinkler Systems

Anson, Maine

Each private fire hydrant in the Anson Water District is billed at $50 per year, and each inside fire plug on not over 1½" pipe at $10. Automatic sprinklers for fire protection are charged at 7c per sprinkler per year. No charge is made for sprinkler heads where the charge at regular meter rates for water used is in excess of the amount charged for sprinkler protection.

Augusta, Maine

The Augusta Water District makes the following annual charges for private fire protection, including the use of water for extinguishing fires and tests of fire apparatus:

Hydrants	$20.00
Sprinkler heads, each	.05
1" standpipes, each	4.00
1½" standpipes, each	4.00
2" standpipes, each	8.00
2½" standpipes, each	8.00
3" standpipes, each	12.00
4" standpipes, each	16.00

In case of private fire protection systems supplied with water through metered connections, the quantity of water actually used for fighting fires or for tests of fire apparatus will be estimated and deducted from the quantity shown by the meter.

Bangor, Maine

For each private fire hydrant installed, a charge of $30 a year is made by the Bangor Water Department, and for each standpipe having fire-hose connections, $3 per year. Automatic sprinkler charges are as follows:

Each 4" connection	$10.00
Each 6" connection	15.00
Each 100 sprinkler heads or less	1.00
Each additional sprinkler head over 100	0.01

Bingham, Maine

The Bingham Water District makes a charge of $50 per year for each private fire hydrant, and $5 for each inside fire plug on not over 1½" pipe. Each sprinkler head for automatic sprinklers is billed at 4c per year. No charge is made for sprinkler heads where the charge at regular meter rates for water used is in excess of the amount charged for sprinkler protection.

Calais, Maine

The Calais Water & Power Co.'s annual rates for private fire protection are as follows:

2½" hose connections	
First 3, each	$30.00
Next 3, each	20.00
Over 6, each	10.00
2" hose connections	25.00
1" hose connections	15.00
Hose connections under 1"	
First 5, each	10.00
Next 5, each	8.00
Over 10, each	6.00
Private fire-hydrants	
First 3, each	60.00
Next 3, each	50.00
Over 6, each	40.00
Sprinkler heads	
First 1,000, each	0.10
Next 1,000, each	0.08
Over 2,000, each	0.06

For public fire hydrants, the rate is $100 each per year for the first 100, and $55 each for all over 100 hydrants.

Milo, Maine

Private fire hydrants are bliled by the Milo Water Co. at $40 each per year, 2" fire-hose connections at $10 each, 1" fire-hose connections at $5 each, and sprinkler heads at 10c each. Public fire hydrants are billed at $60 per year.

Portland, Maine

Water is supplied for private fire protection by the Portland Water District at the following annual rates:

Each private hydrant with a 6" or larger connection, $30

Each private hydrant with less than 6" connection, $20

Each 2" service entering a building for the supply of standpipes or sprinklers, $7.50 per year and 1c additional for each sprinkler head

Each 4" service, $15 per year and 1c additional for each sprinkler head

Each 6" service, $30 per year and 1c additional for each sprinkler head

Each 8" service, $60 per year and 1c additional for each sprinkler head

Waterville, Maine

For each public fire hydrant installed by and belonging to the Kennebec Water District, up to 50 hydrants in a single municipality, a charge of $40 per year is made, and $30 per year for each hydrant in excess of 50.

For private fire hydrants installed and maintained by the consumer, the charge is $40 per year each, and for private standpipes equipped with monitor nozzles, installed and maintained by the consumer, $20 per year. Five cents is charged for each automatic sprinkler head per year.

For hose valves or outlets for connecting fire-hose inside buildings, in rooms protected by automatic sprinklers, there is no charge, but in rooms not so protected, $10 per year is charged for a 1" or 1½" outlet, and $15 per year for each 2" or 2½" outlet.

These charges are for the protection afforded and include the use of water for extinguishing fires and tests of fire apparatus only. Water used through fire-hydrants or monitor nozzles for other purposes will be charged for on the basis of the estimated quantity used.

Winthrop, Maine

The Winthrop Water District makes the following charges for private fire protection:

Hydrants, each per year	$30.00
2½" standpipes, each	25.00
2" standpipes, each	20.00
1½" standpipes, each	15.00
1" standpipes, each	10.00
Sprinkler heads, each	0.50

Municipal hydrants are billed at $50 each per year.

Yarmouth, Maine

The Yarmouth Water District supplies water free to churches and municipally owned public buildings for fire protection service only. Separate service connections to the main are required for such installations and must not be less than 2" in diameter. The consumer is required to pay the entire cost of installing such services, including tapping the main. Annual fire protection rates are the same as at Portland, Maine.

Bay City, Mich.

For each fire connection service on private property the Bay City Water Department makes the following annual charges:

1½" connection	$15
2" connection	18
3" connection	25
4" connection	35
6" connection	50
8" connection	150

Menominee, Mich.

The Water Department charges 4c per sprinkler head per year for all automatic sprinklers and $60 each per year for standard-pattern private fire hydrants, $50 each per year for public fire hydrants, and $6 per year for each standpipe with ¼-inch diameter nozzle.

Hamilton, Mont.

The Missoula Public Service Co. makes the following charges for fire protection:

Each municipal hydrant	$2.50
1" connection	1.00
1¼" connection	1.50
1½" connection	2.25
2" connection	4.00

Missoula, Mont.

The Missoula Public Service Co. charges the following rates for fire protection:

Each municipal or private hydrant	$5.00
1" connection	1.00
1¼" connection	1.50
1½" connection	2.25
1¾" connection	2.75
2" connection	3.25

Hackensack, N. J.

The Hackensack Water Co. charges $12 per year for private hydrants. Sprinkler connections are specially metered and charged for at the following rates:

Size of Meter	Per Quarter
3"	$54.00
4"	78.00
6"	150.00
8"	240.00

No additional charge is made for water used for test or fire purposes.

Newark, N. J.

(Municipal)

Minimum charges for fire lines:

Size of Connection	Per Year
2"	$25
4"	50
6"	75

Ardsley, N. Y.

The New Rochelle Water Co. charges $7 per year per hydrant for private fire hydrants.

Separate connections must be made to sprinkler systems for fire protection and independently metered. The following charges are made:

Size of Meter	Per Quarter
2"	$24
3"	58
4"	84
6"	158
8"	254

Port Dickinson, N. Y.

Water for fire protection is paid for by a frontage tax of $1 per 50-foot lot.

Watertown, N. Y.

The city budget includes a rate of 1.2 cents per inch-foot of mains 6 inches in diameter or larger and $20 for each standard fire hydrant with one steamer and not less than two hose outlets with a minimum gated branch 6 inches or larger.

For service pipes for fire service, the following monthly charges shall be made:

2" fire line	$1.75
3" fire line	3.40
4" fire line	5.00
6" fire line	10.00
8" fire line	15.00
10" fire line	20.00
12" fire line	25.00

Hendersonville, N. C.

The following annual rates are charged by the Water Commission for special private fire service, based upon the size of the connection:

2" connection	$24
3" connection	36
4" connection	48
6" connection	72
8" connection	144

When this special fire service connection is used to supply an automatic sprinkler system exclusively, the following annual charges are made:

4" connection	$40
6" connection	50
8" connection	60

Akron, Ohio

Quarterly rates for fire protection service are as follows:

Size of Line or Meter	Meter Owned by City	Meter Owned by Consumer	Service Unmetered
2"	$6	$2	$8
3"	9	3	12
4"	12	4	16
6"	18	6	24
8"	20	10	40
10"	45	15	60

Athens, Ohio

Automatic fire sprinkler rates per year are as follows:

4" connection	$50
6" connection	75
8" connection	100

Columbus, Ohio

The Division of Water charges $12 per year for each fire hydrant or hose connection on private property having an unmetered service, all water, except that used for fire or authorized tests, being paid for at meter rates. Automatic sprinkler systems are billed at $12 per floor per year when served by an unmetered service.

Marion, Ohio

The Marion Water Co. charges $3.25 per month each for unmetered standard fire hydrants, and 25c each per month for each ¼-inch nozzle on standpipes. For each 10,000 square feet of floor surface protected by a sprinkler system, a monthly charge of 15c per 1,000 square feet is made; for the next 20,000 square feet, 10c per 1,000 square feet; and for all over 30,000 square feet, 5c per 1,000 square feet.

North Baltimore, Ohio

The North Baltimore Water & Electric Co. makes the following annual charges for private fire protection:

Each 2" service	$50
Each 3" service	60
Each fire hydrant	60

These rates cover only the water actually used for extinguishing fires. For the first 80 public fire hydrants an annual rate of $4,800 is charged, with $50 for each additional hydrant.

Painesville, Ohio

Water for any private fire protection device may be metered at regular rates through the meter used for regular consumption. If a separate meter is used for one or more fire hydrants or sprinkling systems the following quarterly service rates shall be charged in addition to any metered consumption:

1½" tap	$2
2" tap	2
3" tap	2
4" tap	3
6" tap	3
8" tap	5
10" tap	5

The following quarterly charges are made for each private unmetered fire hydrant or sprinkling system:

2" and 3" taps	$4
4" tap	8
6" tap	10

Enid, Okla.

Services for fire protection must be fitted with only such fixtures as are needed for fire protection and be entirely disconnected from services used for other purposes. The annual charge for fire service to cover the cost of inspection and testing and the maintenance of that part of the service between the main and the curb, is as follows:

2" service	$10
3" service	15
4" service	30
6" service	50

Eugene, Ore.

A charge of $166.67 per month is made to the city for plant, reservoirs and supply mains devoted to fire protection and $1.50 for each hydrant. A single-opening standpipe equals ½ hydrant.

For private fire protection 60c per inch diameter of connection made to the distribution main is charged per month, with no charge less than 90c per month.

All gates on flat-rate fire connections must be kept closed and sealed, and seals shall not be broken, except in case of fire, without the authority of the water department and payment for inspection and resealing. All connections through which water is taken for uses other than fire protection will be metered and meter rates will apply. A charge of 25c for the first valve, 20c for the next, 15c each for the next three and 10c each for all over five valves will be made for resealing of fire-line valves.

Altoona, Pa.

The Allegheny Water Co. makes the following annual service charge for private fire protection service:

2" service line	$48
3" service line	96
4" service line	200
6" service line	400
Hose connections, including openings in fire hydrants, each	12.50
Sprinkler heads, each	0.05

The charge for hose connection or sprinkler heads is made in case it amounts to more than the service charge, in which case it replaces the service charge. Public fire hydrants are charged for at $12.50 per hose opening per year.

Avis, Pa.

The Chatham Water Co. charges $12.50 for each public fire hydrant per quarter and makes the following quarterly charges for private fire service, which is to be used in case of fire only:

2" connection	$6
3" connection	9
4" connection	13
6" connection	20

Easton, Pa.

The North American Water Works Co. makes a charge to the city of $40 a year for each public hydrant, except those under contract. For private fire service the annual charges are as follows:

2" connection	$30
3" connection	40
4" connection	60
6" connection	100

Girardsville, Pa.

For public fire hydrants the Consumers Water Co. charges $12.50 each per quarter. For each private fire hydrant or connection the quarterly charges are as follows:

2"	$2.00
3"	4.50
4"	8.00
6"	18.00

Greensburg, Pa.

The Westmoreland Water Co., which also serves Jeannette and Irwin, charges $9 each per year for each public fire hydrant and $485 for each mile of main 4 inches and over. For private fire service, the following annual rates are charged:

Each hydrant directly connected to main on public highway	$60
Existing fire hydrants connected to service line between main and meter	60
Each 2" connection to main	25
Each 4" connection to main	100
Each 6" connection to main	250

(To be continued in the November issue)

Should Pedestrian Crosswalks Be Established in the Middle of City Blocks?

A SUGGESTION by Ernest McCullough, of Long Island City, in a recent communication to *The New York Times*, that a pedestrian lane be established across the middle of each city block has stimulated considerable discussion on the merits and demerits of such a scheme.

Mr. McCullough believes that such lanes would offer the pedestrian greater safety than is afforded at intersections where cars are permitted to turn the corners. When the traffic lights stop the flow of vehicles, he would have all cars caught in the block before reaching the lane stop there instead of proceeding to the end of the block.

George D. Burr, City Traffic Engineer of San Francisco, in a letter to THE AMERICAN CITY, offers the most comprehensive expression of opinion. On the Pacific Coast, where pedestrians, as well as motorists, obey the traffic lights, he considers such an innovation both unnecessary and unwise:

San Francisco Finds Plan Ineffective

"We have had several mid-block crosswalks in San Francisco. All except four have been removed. Steps are being taken to have the few remaining ones abolished. Such crosswalks have been a constant source of aggravation from several points of view. They create a hazard for pedestrians. They are difficult to police or protect. They greatly reduce the overall speed at which traffic moves."

Mr. Burr analyses fully these defects of the mid-block lanes as existent in San Francisco and cites the effectiveness there of the system of pedestrian control by traffic signals and traffic officers.

"One basic principle of traffic safety is to define the rights and duties of each class of traffic, so that each class may proceed with reasonable expectation as to what may be expected from the other traffic elements. Consequently, we have the elementary rules that vehicles shall drive on the right-hand side of the roadway; that the first vehicle entering the intersection, or if two shall enter at the same time, that the vehicle from the right shall have the right-of-way. Denser traffic has forced the adoption of other rules to assist a driver to anticipate the actions of other drivers, so that turning a vehicle around in the middle of the block is now prohibited except in certain instances when traffic is very light. The rate of speed allowed at the intersection is very low as compared to that allowed in the mid-block. All allowable speeds would have to be reduced to that safely permissible at intersections if the same practices—namely, turning and entering the roadway from alleys and garages without first stopping—were allowed mid-block as at intersections.

"In San Francisco, as well as generally throughout the United States, far more than half, and in many instances as much as 70 per cent, of all persons killed in motor vehicle accidents are pedestrians. The aged pedestrian, that is, more than 50 years old, figures most prominently. Therefore, it is seen that the pedestrian and particularly the elderly ones must be carefully guarded if we are to materially reduce our fatal accidents.

"The driver must know where to expect to find pedestrians if he is to avoid them. It has been pointed out that drivers expect to, and will, drive rapidly in the mid-blocks. Therefore, pedestrian crossings have been limited to intersections.

Number of Policemen Limited

"From another point of view it may be observed that the greatest possible safety to pedestrians crossing a roadway at the pavement level is afforded by the presence of uniformed policemen. Policemen are limited in number by conomic considerations. It does not seem likely that communities will be able to afford placing traffic officers on continuous duty at mid-block crosswalks, as well as at intersections.

"Another disadvantage of a marked mid-block crosswalk is that this establishes a community habit of crossing roadways at points other than at intersections. This results in slack pedestrian control, jay-walking and other dangerous practices with consequent increases in accidents.

"The width of a pedestrian walk is limited by practical considerations to from 10 to 20 feet. A pedestrian moves at an average speed of only 5 feet per second. Therefore a clearance period of approximately 16 seconds is required to allow the last person entering the roadway to safely clear the vehicular paths for a roadway 80 feet wide.

"If a person enters the crosswalk after the clearance period starts, he will be caught between the lines of moving vehicles, and as the visibility is very limited when, say, four lanes of vehicles are lined up on each side of a narrow crosswalk, his chance of safely reaching the opposite curb is not great. When traffic is dense, the line of standing vehicles waiting for the "go" signal often extends back from the intersection over the mid-block crosswalk, thus forcing pedestrians to thread their way between standing traffic if they are able to cross the street at all.

Signals Required

"It has become almost basic that automatic stop-and-go signals should be employed to protect any point where large numbers of vehicles or pedestrians cross a heavily travelled roadway. In the central business districts such points occur at every intersection. If mid-block crosswalks are employed, signals are also necessary there if adequate safety is to be even approached.

"However, if reasonable speeds are to be had when signals are closely spaced in two directions, a vehicle must travel twice the distance between adjacent signals in each cycle. That is, if blocks are 360 feet long between street intersections and signalized mid-block crosswalks are used, together with a 40-second cycle, which is as short as practical, overall speeds would be reduced to a maximum of about six miles per hour if traffic is heavy. Longer cycles would result in lower average speeds, approaching stagnation. A cycle as short as 40 seconds, although desirable for speed, allows only about 15 seconds for vehicular travel if 10 seconds is allowed for pedestrians to flow on the crosswalk, plus 15 seconds for pedestrian clearance, assuming an 80-foot width of roadway. If narrower roadways exist, about one second increase in the "go" time along the roadway may be obtained by decreasing the clearance interval about 1 second for each 5 feet decrease in roadway width.

"Our experience in San Francisco has been that for nearly two years past there has been but one death in our central

Will Mid-Block Crosswalks for Pedestrians Add to Their Safety?

Proposals to assure pedestrians greater safety when crossing busy city streets are occupying the attention of traffic engineers in every section of the country. Among the suggestions occasionally advanced is one to establish pedestrian crosswalks in the middle of city blocks. While such mid-block lanes have been tried on a limited scale, no test has apparently been made of their effectiveness in consecutive blocks along main boulevards.

In the accompanying article, THE AMERICAN CITY presents the views of some of the leading municipal traffic engineers on the feasibility of the extensive use of such walks. Most of the experts oppose the idea either on general theory, or from actual experience, and would therefore give a negative reply to the question asked at the head of the article.

traffic district due to vehicular traffic, and that this one occurred in the early morning hours before traffic officers were on duty and before signals were in operation. This record has been attained by requiring pedestrians to cross marked crosswalks at the intersections, going with the green signal. The presence of a well-trained, efficient corps of traffic officers, posted at the crosswalks, has contributed materially to pedestrian safety."

Not a Problem in St. Louis

Reyburn Hoffmann, Traffic Engineer of St. Louis, states that since the blocks there average 230 feet by 270 feet, the establishment of crosswalks for pedestrian convenience is not a vital question in that city. He does find some points in favor of the proposal in general:

"The suggestion to install middle-of-the-block pedestrian lanes has at least two favorable arguments—that of safety to the pedestrian, because he only has to watch for traffic from one direction, and that of convenience where exceptionally long blocks occur."

Mr. Hoffmann follows his statement, however, with this criticism:

"It is my opinion that to keep stopped vehicles off these walks would be a real job, even with an officer there, because there are always drivers who try to be the last ones across and they are prevented by machines ahead from clearing the crosswalk. This happens at most busy crossings downtown today."

Seattle Favors Signal Control at Intersections

Concentration of those pedestrians who tend to jay-walk into one specified lane is cited as an advantage of the proposal by J. W. A. Bollong, Traffic Engineer of Seattle, Wash., but he concludes that signal control of pedestrians at regular intersections is usually preferable. He writes:

"Pedestrian lanes in the center of long blocks have been tried out in Los Angeles, Seattle and San Francisco. These lanes are marked by means of painted lines or buttons of some character. Pedestrians have the right-of-way over vehicles. This method has assisted in eliminating jay-walking, or walking across the street anywhere between intersections. The existence of a lane attracts and concentrates the majority of the pedestrians who rebel in walking from one end to another of any block more than 300 feet long. Automobilists, knowing the existence of these lanes, use greater care in passing across them.

"The proper way to control and safeguard pedestrians, however, is to require them to obey traffic signals and orders of traffic officers. Here on the Pacific Coast, we have absolute control of the pedestrian with regard to traffic signals. No one steps off the curb unless he has the green light with him or in his favor. Along with the traffic signals on this coast, we have a chime-type bell which rings at the beginning and end of the change interval. Without this, it is my belief that we would be unable to control pedestrian traffic."

Might Work in Some Cases

Ralph W. Eaton, Traffic Engineer at Providence, R. I., thinks that in certain places crosswalks might prove advantageous and states that he knows of instances where they have proved successful.

The most useful course for those charged with traffic regulation, he writes, is to adopt a uniform code, so far as possible, and endeavor by continuous effort to teach the motorist and pedestrian what it means and how to operate consistently with it.

While marked pedestrian crosswalks have been established in Boston where a block is unusually long and near schools, churches, playgrounds, etc., that city has been extremely cautious about following this method to any great degree, according to John F. Hurley, Traffic Engineer, who remarks in this connection:

"It is a well-established fact that more pedestrian accidents occur between intersections than at intersections. It is my opinion, therefore, that Mr. McCullough's suggestion is not practical. It is reasonable to assume that there are less accidents at intersections where they are controlled by police officers or traffic signals.

"The condition of which he complains regarding intersections where there are heavy turns applies only in cases where traffic lights do not have a positive pedestrian indication. In Boston we show a red-and-yellow combination indication on all signals at an intersection, which means that pedestrians have the exclusive use of the intersection area while such an indication is showing. This eliminates any possibility of pedestrian accidents due to the turning of vehicles, which condition exists in cities where the two-light system is in vogue, or where pedestrian indications are not used. The length of this pedestrian period varies according to the location. In some locations in downtown Boston, particularly in our concentrated retail store district, pedestrians are given the same period of time as vehicles during the peak hours and particularly during the pre-Christmas rush. In conclusion I would say that it seems to me that marking pedestrian crosswalks between intersections will only add another intersection and therefore another source of potential danger in each block."

Find Little in Plan's Favor

Hawley S. Simpson, Traffic Engineer for Essex County, New Jersey, and Oscar M. Gunderson, holding a similar position at Flint, Mich., are strongly opposed to the introduction of special mid-block lanes. Mr. Simpson contends:

"I cannot quite conceive of motorists stopping at a center crosswalk, and even less that Mr. McCullough's suggestion that 'common sense should be given an opportunity to function and drivers may be permitted to proceed very slowly to cross this lane, if there are no, or very few, pedestrians using it,' would be practicable. Is not this the present situation relative to turning vehicles and pedestrians? New Jersey law grants the right-of-way to pedestrians, proceeding with the signal, over all turning vehicles, and I am quite sure New York courts have ruled that the pedestrian right-of-way in crosswalks must be observed by motorists. Yet only a short observation at any heavy intersection in either state will convince one of the lack of observance of what I think is a very fundamental regulation. If this is so, will 'common sense' in a mid-block be more pronounced? I am afraid not.

"My only experience with such crosswalks is limited to examples in Newark and Detroit in department store areas, one on Woodward Avenue in Detroit, and one on Halsey Street in Newark. These, of course, are not typical examples of the sort which Mr. McCullough refers to. They are continually policed to protect the pedestrians."

Flint discourages the use of the streets by pedestrians at other than intersection crosswalks, states Mr. Gunderson. The usual block in the downtown section is 300 feet long and this is far too short for a crosswalk between the regular intersections, he declares.

"The placing of crosswalks between intersections would necessarily require that more courtesy be shown pedestrians by motorists than is now the case. As the danger from crossing the street at intersections comes from turning movements, it would seem more reasonable to get courtesy from the motorists at intersections than at both the regular intersections and the cross-walks. Such walks would prove dangerous to some extent and would also impede the free flow of vehicular traffic.

"Mr. McCullough's suggestion that vehicular traffic stop before reaching the end of the block on the red light might cause operators to watch the signals when they should be watching traffic and it might require cities to revamp their traffic signal system. At Battle Creek, Mich., there is a crosswalk on Michigan Avenue between two intersections. This particular one works out quite well because it is on a long block and the street is not very wide."

In the opinion of Leslie J. Sorenson, Traffic Engineer for Chicago, the crosswalk plan would be exceedingly dangerous to pedestrian traffic.

"I can think of no place where this scheme could be used except where traffic over the street is controlled by the obsolete synchronized signal system. It is a certainty that it could not be applied under the modern progressive system where there is a continuous flow of traffic in mid-block.

"Pedestrian rights have been established and clearly defined by several court decisions, and it is my recollection that at least two of these decisions defined the pedestrian's undisputed right to the roadway as that area confined between the prolongation of the property and curb lines."

FORWARD STEPS

Reported by

Municipal Officials, Chamber of Commerce Executives, and Others

A Forward Step Seventy Years Ago Proves Its Value Now

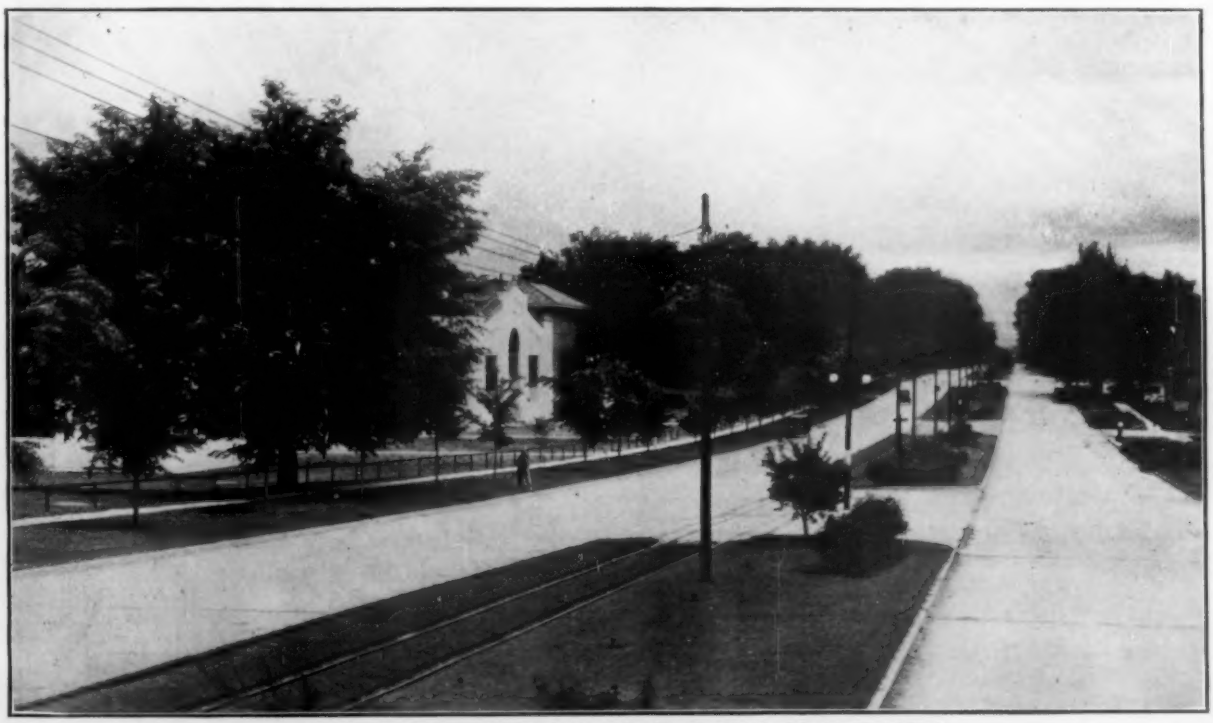
FORT COLLINS, COLO.—This city of 14,000, lying in the shadow of the Rockies, is nationally known because of its unusually wide streets with their center parking, provided through the foresight of the men who laid out the town some seventy years ago. Little did they dream then that because of the wide streets this frontier town would some day photograph quite marvelously from the air.

Fort Collins provides most picturesque avenues and drives with flowers of many shades and varieties. College and Mountain Avenues, the two main boulevards, which intersect in the center of the city, are 140 feet wide with 25 feet of parking on each side and 30 feet of parking in the center. An irrigation system adequate to care for this center parking was installed nine years ago at a cost of $9,000. Three men are employed to keep the grass and flowers there in good condition.

An expenditure of only $2,400 a year provides for the twenty-five varieties of flowers and bulbs which have the velvety grass parking as a background. Of the $2,400, approximately $200 is spent for seeds and young plants, and the balance is paid for upkeep. Most of the annuals are started in the municipal cold frames and are set out in the parking later. Other plants that require more warmth than is provided in this climate in the spring are purchased from local greenhouses and are transplanted in summer. In addition to the annuals there are many perennials.

Sweet William, candytuft, geraniums,

AIR VIEW OF BUSINESS SECTION OF FORT COLLINS, COLO.



CENTER PARKING SPACE ON SOUTH COLLINS AVENUE, FORT COLLINS

Wide streets like this were provided for when the city was laid out about 70 years ago

petunias, larkspur, pinks, English daisies, marguerites, coleus, columbines, Oriental poppies, peonies of many hues, delphinium, marigolds, calendula, and numerous others appear in season, and the gardeners are constantly at work, weeding, pruning, changing and caring for these plants which make the civic thoroughfares so attractive.

The parks of Fort Collins consist of 156 acres within the city limits, and 204 acres of mountain parks, which are splendidly kept. But the wide streets with the center parking and exquisite flowers attract much attention and always call forth most favorable comment from citizens and tourists.

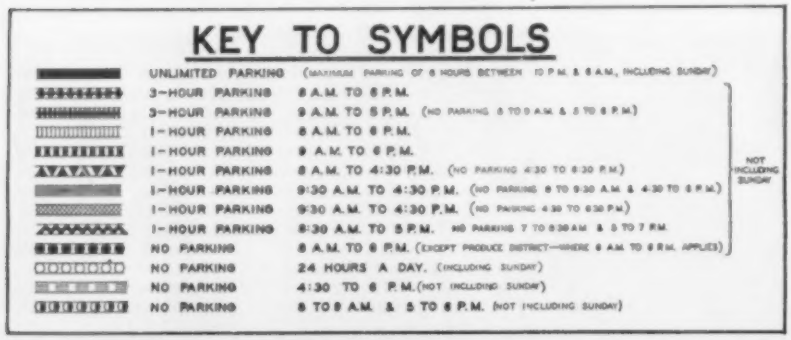
AGNES WRIGHT SPRING.

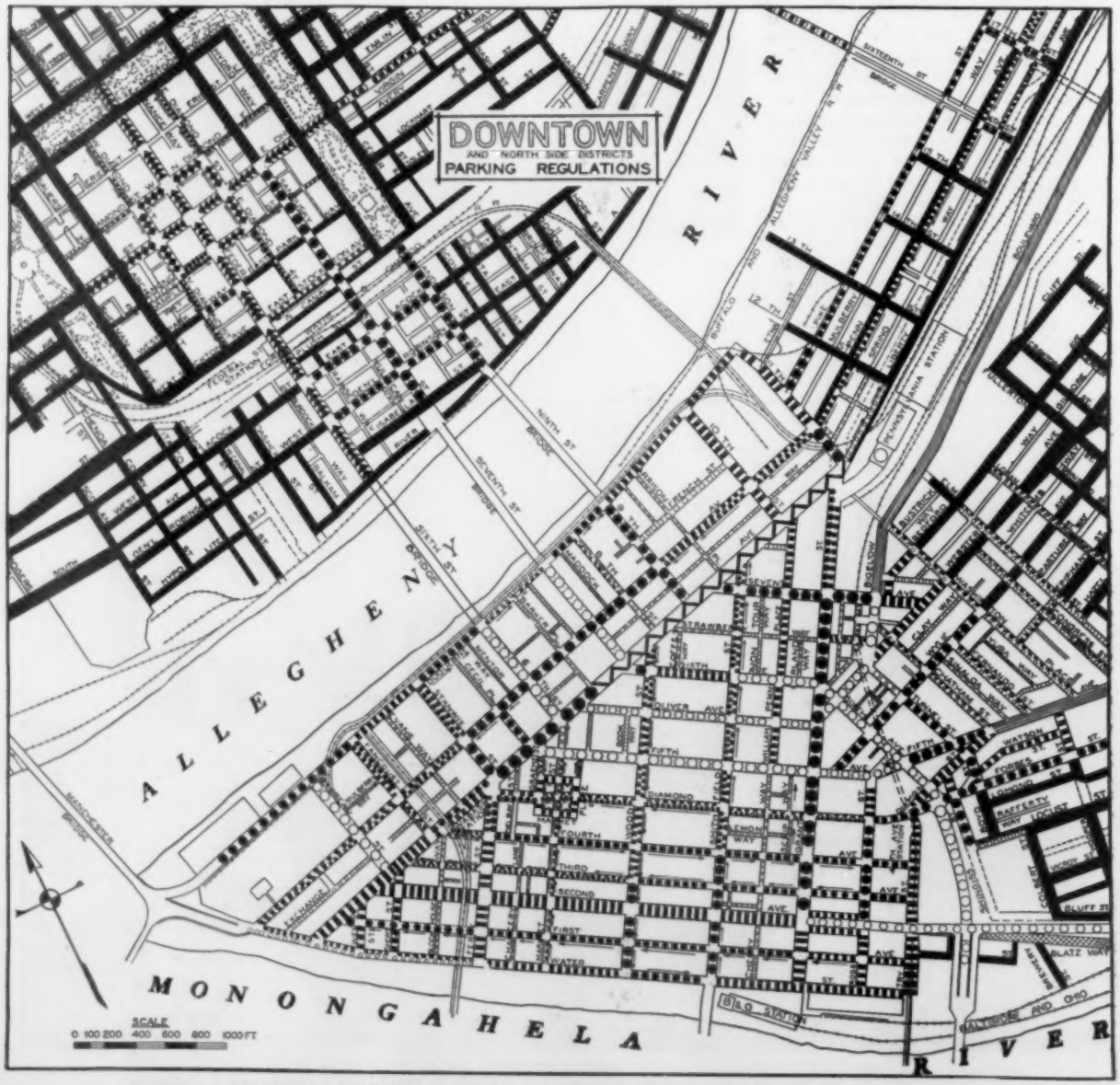
Pittsburgh Establishes City Tourist Bureau

PITTSBURGH, PA.—This city has established more firmly its reputation for being one of the most hospitable municipalities in the country. Recently, at the suggestion of Mayor Charles H. Kline, a municipal information bureau for tourists was instituted to provide information for, and extend courtesies to, the host of travelers through this section.

Each police officer has a supply of visitors' greeting cards, which are distributed among the drivers of all automobiles with foreign licenses. In addition to welcoming the travelers to the city, these cards direct them to the tourist bureau in the City-County Building.

At the bureau, the tourist is supplied with a tourist guide listing all the main state and national highways entering and leaving Pittsburgh, outstanding points of interest in the city, and the major traffic regulations. The highway routes are


KEY TO SYMBOLS
UNLIMITED PARKING (MAXIMUM PARKING OF 6 HOURS BETWEEN 10 P.M. & 8 A.M., INCLUDING SUNDAY)
3-HOUR PARKING 8 A.M. TO 6 P.M.
3-HOUR PARKING 9 A.M. TO 5 P.M. (NO PARKING 5 TO 9 A.M. & 5 TO 6 P.M.)
1-HOUR PARKING 8 A.M. TO 6 P.M.
1-HOUR PARKING 9 A.M. TO 6 P.M.
1-HOUR PARKING 8 A.M. TO 4:30 P.M. (NO PARKING 4:30 TO 6:30 P.M.)
1-HOUR PARKING 9:30 A.M. TO 4:30 P.M. (NO PARKING 6 TO 9:30 A.M. & 4:30 TO 6 P.M.)
1-HOUR PARKING 9:30 A.M. TO 4:30 P.M. (NO PARKING 4:30 TO 6:30 P.M.)
1-HOUR PARKING 6:30 A.M. TO 5 P.M. NO PARKING 7 TO 8:30 A.M. & 5 TO 7 P.M.
NOT INCLUDING SUNDAY
NO PARKING 8 A.M. TO 6 P.M. (EXCEPT PRODUCE DISTRICT—WHERE 6 A.M. TO 6 P.M. APPLIES)
NO PARKING 24 HOURS A DAY. (INCLUDING SUNDAY)
NO PARKING 4:30 TO 6 P.M. (NOT INCLUDING SUNDAY)
NO PARKING 6 TO 9 A.M. & 5 TO 6 P.M. (NOT INCLUDING SUNDAY)



PARKING MAP IN THE PITTSBURGH PARKING GUIDE, WHICH IS GIVEN TO TOURISTS BY THE CITY

shown on maps. A parking guide, recording the various local parking regulations and the one-way streets, is also given to each tourist.

While these data are of great service, perhaps the most helpful item provided is a large identifying cardboard disc. This circular card is about 6½ inches in diameter, finished in striking colors and bearing the words "Guest of Pittsburgh." It is printed exactly alike on both sides and

CARDBOARD IDENTIFICATION DISC FOR PITTSBURGH'S GUESTS

tied to a string which permits it to be hung from the radiator cap. A car carrying one of these cards is easily discernible in traffic and, if involved in any misunderstanding or accident, the driver is accorded courteous treatment by the police and instructed regarding any error he may have made.

During the first two months of its operation, the bureau has attracted not only many tourists but also local residents seeking information on which to base their vacation touring trips. The bureau functions independently of any other agency, although it cooperates whenever possible with the local motor clubs and the Chamber of Commerce. Benjamin R. Marshall, Inspector of Traffic, is the director of this new work.

J. V. LONG,
Director, Education Promotion, Better Traffic Committee.

Detroit Builds Impressive New Fire Headquarters

DETROIT, MICH.—The new central fire headquarters erected on the site of its historic predecessor is in as direct contrast to the old structure as present-day fire-fighting methods are to those of fifty years ago.

Plans for the building called for the inclusion of a garage, a fire-station with living-quarters for about 40 firemen, offices, a medical bureau and an auditorium. This ideal has been realized at a cost of about $500,000, not including the acquisition of the site.

The building has a frontage of 120 feet along Larned Street and 110 feet 6 inches along Wayne Street. It is built entirely of steel, concrete and brick. The exterior along the two street fronts has a granite base course, with a red and brown brick, and buff-colored terra cotta trimming.

Five floors and a basement are provided, the basement affording storage for thirty cars, which pass on to Wayne Street by means of a ramp. This garage space is for the convenience of battalion chiefs and for heads of departments called to the headquarters for conferences or business with the various bureaus. A room for oil storage, supply and exhaust fan rooms, and a workshop also are in the basement.

The entrance lobby to the official section of the building is on the Larned Street side. The floors and walls of the lobby are of marble, and two elevators are available, one of which is commodious enough to accommodate firemen carrying a stretcher.

On this main floor is the apparatus room, which is 77 feet by 80 feet and has four exits on Larned Street and three on Wayne Street. It is designed to house the chief's car, the cars of his two assistants, high-pressure apparatus No. 1, the water-tower, ladder No. 1, Engine No. 1, the department ambulance, and an extra piece of apparatus if necessary. Seven slide poles for the men and one for the chief connect the second floor and the apparatus room. A lounging-room, a dining-room, a kitchen, a drying-closet and the entrance to the hose shaft are also on the first floor and three signal boards have been installed for receiving alarms.

The living-quarters occupy the entire second floor. The main dormitory, which extends 115 feet along Larned Street, affords sleeping-accommodations for 40, and the assistant chiefs and officers have their own bedrooms, living-room and toilet facilities.

On the third floor are the offices of the members and secretary of the Board of Fire Commissioners; of the fire chief, who also has his own living-quarters there; and of the assistant chiefs and the clerical workers. A meeting-room for the board, a waiting-room for those called before it, and an exhibit hall in which are displayed all relics of interest to the Fire Department also are on this floor.

Half of the fourth floor is occupied by the Fire Prevention Bureau, which embraces offices and rooms for the fire marshal, his assistants, clerical help, and the inspectors, and for demonstrating and testing various fire prevention devices. A complete photographic department functions in conjunction with the Bureau and has its equipment and quarters on this floor.

In the medical section on the same floor are consultation, examination, treatment, operating and light-treatment rooms. Modern surgical equipment has been installed and a physician is on duty constantly. A printing bureau for the Fire Department is also on the fourth floor.

The fifth floor was added primarily to provide space for future expansion of the various bureaus. At present, it is equipped for use as an auditorium with moving-picture equipment available for entertainment or instruction purposes.

HANS GEHRKE,
Architect.

Municipal Rose Garden Draws Many to Monterey

MONTEREY, CALIF.—Only in its second year, yet containing approximately 1,400 plants, the municipal rose garden within two blocks of the business center of this city is attracting visitors from many remote points.

During the summer months the garden

CENTRAL FIRE HEADQUARTERS BUILDING RECENTLY ERECTED IN DETROIT

PORTION OF MUNICIPAL ROSE GARDEN AT MONTEREY, CALIF.
During the summer months this garden is practically always in full bloom

is practically always in full bloom, offering a variety of color effects with its more than 200 kinds of bush roses, more than 60 types of climbing roses, 20 species of pillar roses, and about an equal number of standard or tree roses. A lily pond, ringed around by tree and baby roses, is located in the center of the garden and enhances its appeal. Surrounding this central feature are the mass plantings of red, pink, yellow and new-bud roses. One especially beautiful bed contains 50 of the new single Vesuvius rose, which blossoms a deep flaming scarlet.

The fact that the garden is so near the heart of the city and adjoining such historic landmarks as Colton Hall, first state capitol of California, adds to its popularity. One of the most interesting spots in the display is where old and new roses have been planted in neighboring beds. Among the old roses are many species no longer available commercially, such as the York and Lancaster, the old Blush variety and many other kinds of the Old Norse roses. Oldest of all are the two bushes of what is known as the Ancient Rose—a variety which grew in ancient Greece and Italy. In the more modern beds are various types of the newest roses illustrating what the rose hybridist has accomplished by his latest experiments. An exclusive type known as the Father Junipero Serra rose, developed by Father Schoener of Santa Barbara and presented to the Monterey garden, occupies a prominent place. All the plants in the garden are plainly marked with the name and date of origin. The beds have been so laid out that every rose is easily seen from an adjoining walk or pathway.

The main approach to the garden runs underneath a series of twelve arches, each arch planted with two similar climbing roses. The garden is financed and maintained by the city, which has been quickly convinced of its value both as a civic beauty-spot and as a tourist attraction.

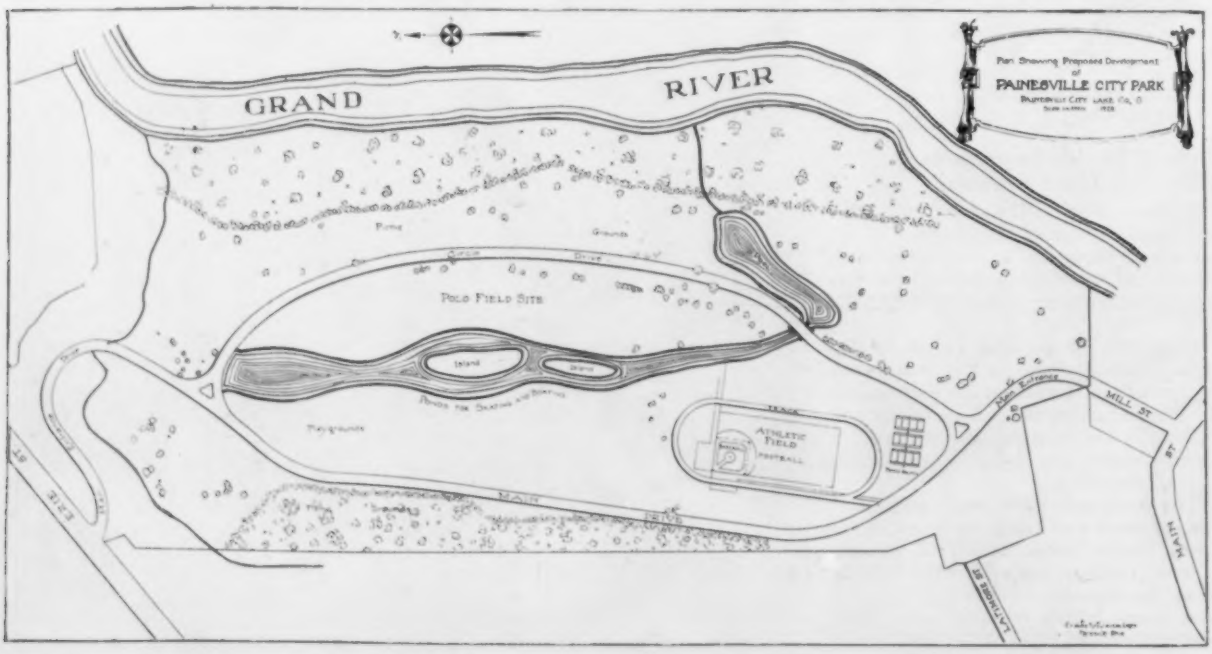
FRANCIS E. LESTER,
President, Chamber of Commerce.

Citizen Cooperation Ensures Painesville a Splendid Recreation Area

PAINESVILLE, OHIO.—The present park development of the city of Painesville comprises a 74-acre tract extending along the west bank of Grand River between Main Street and the property abutting Erie Street on the southerly side. The area is a flat about 15 feet above low-water level, with steep hillside slopes to the west and north. The land was formerly used as a golf course and is picturesque in its natural abundance of trees and its rich and fertile soil.

The city is indebted for this area to a group of prominent and public-spirited men who conceived the idea in 1924 of forming a syndicate and purchasing the whole 74-acre tract, which they were able to do at a favorable price. In 1926, the Kiwanis Club raised funds through public subscription more than sufficient to purchase the area from the syndicate. Contributions to this campaign fund included 728 separate payments. The largest single donation was made by the Painesville Kiwanis Club, and was $1,500. One of the former syndicate members donated $1,000; three $500 checks were received from similar sources, and 12 syndicate members contributed $100 each. The balance of the pledges included payments from $200 down to 50 cents.

In 1928, the Painesville Polo Club landscaped and sodded an area adequate for the playing of that game; a modern athletic field sufficient in size to include a



baseball diamond and football field was graded, underdrained and seeded. Funds amounting to about $1,400 are now available for further development, and it is expected that the local Kiwanis Club will add at least $1,000. Plans in immediate prospect include damming a small stream through the center of the area, thus making a place where small children may enjoy both winter and summer sports. A scenic drive about a mile long is also being considered and attention will be given to the trimming of trees and the removal of unsightly vegetation along the river bank.

Considerable opposition was shown at the beginning of the drive for public funds to secure the area for city use. But the splendid showing made by the canvassing teams, the fact that the purchase price was oversubscribed, and the fact that the City Council's appropriation of $1,000 out of general funds for this purpose met not a single objection from authoritative sources, all indicate that the entire project will be pushed. We anticipate the early completion of the development to the point where it can be enjoyed the year round by the children and adults of Painesville.

R. M. EVANS,
City Manager.

Handicraft on the Playgrounds

SAN FRANCISCO, CALIF.—The children of the San Francisco playgrounds have proved that handicraft is captain of the instincts.

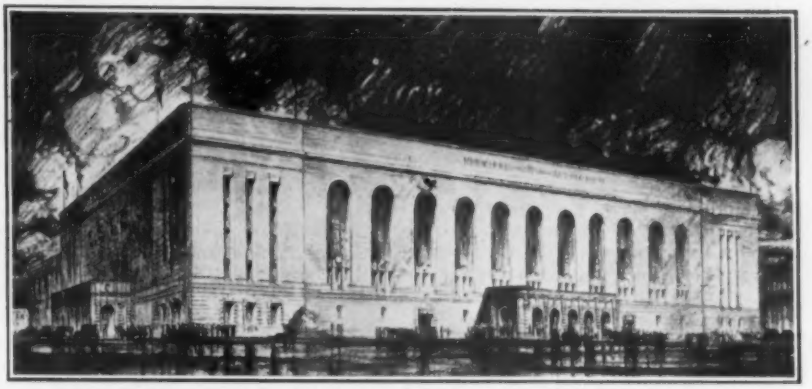
The joy expressed by the children, together with their satisfaction in having created something new, explains the popularity of this activity. During the last year the department has encouraged this phase of its program because the results obtained are of paramount importance.

Miniature aircraft construction represents a very significant type of handicraft, because many boys are becoming more and more "air-minded." The boys must perform very exacting and highly skilled work over minute details. Some of the planes are astonishingly remarkable. Each year the department holds a "Lindy" League Contest and enters the national Playground and Recreation Association miniature aircraft tournament, thereby furnishing an incentive for scores of boys to perform careful and clever work.

During kite season the children are engaged in the delicate art of designing and decorating kites. The Chinese children especially excel in this art. Butterflies, fish, geometric patterns, birds, and other intricately designed kites are beautifully made. The kites reveal the innate artistic ability of the Chinese and a great interest in the famous sport of kite flying.

Basketry, painting, paper art, scroll-sawing and raffia work are also taught on the playgrounds. It is surprising to see the progress made by even the most inexperienced girls and boys. They soon become adept in the art of designing and decorating toy ships, animals, window-pulls and wooden novelties.

VEDA BERESFORD YOUNG,
Secretary, Playground Commission, and Supervisor of Special Activities.



ARCHITECT'S SKETCH OF MUNICIPAL AUDITORIUM AT NEW ORLEANS

New Orleans Erecting Municipal Auditorium

NEW ORLEANS, LA.—About January 1, 1920, New Orleans hopes to throw open to visiting conventions and large local gatherings its impressive municipal auditorium, now being built at a cost of about $2,000,000.

Of Italian Renaissance architecture, the structure will have an exterior of Indiana

"LINDY LEAGUE" CLASS AT RICHMOND PLAYGROUND, SAN FRANCISCO, CALIF.
The youngsters here are receiving instruction from an experienced miniature aircraft builder

EXTERIOR AND INTERIOR VIEWS OF NEW CENTRAL FIRE-ALARM STATION AT SAN DIEGO, CALIF.
Located in Balboa Park, this modern building cost $18,000 and houses equipment valued at approximately $65,000

limestone, will occupy a site 320 feet long and 202 feet deep, and rise five stories in height. The main auditorium will seat about 10,000, with 5,488 demountable seats provided on the floor and 4,626 seats in the balcony. An annex with two assembly halls will seat 882. In an emergency 45 rows of movable seats can be installed close to the stage, which is depressible, 50 feet wide and 92 feet long, and located so as to divide the main auditorium into two separate halls. The larger hall for conventions will seat 6,000, and the concert hall is to provide for 4,000. Seats also may be placed over the stage area when it is depressed.

Eleven committee rooms are to be provided for more intimate meetings. The main floor will be available for exhibits, as will the two-story annex, which is to have 27,000 square feet of space divided equally between two floors. A number of innovations are to characterize the auditorium, among them being the substitution of 8-foot-wide ramps for stairs, connecting the various floors. Special amplifying apparatus will permit those in all sections of the auditorium to hear what is taking place on the stage, while moving-picture equipment, a large organ and an extensive system of flood- and stage-lights are to be additional features. Spacious dressing-rooms for both principals and chorus are being built side-stage, and provision is being made for an ample and attractive supply of curtains, drapes, drops and general scenery.

Although substantial and severe in appearance, the auditorium nevertheless will be beautiful. Eleven high cathedral-like windows are to enhance the dignity and simplicity of the front, and both the plain front and the sides will be relieved by corners which protrude a few inches. Temperatures within are to be regulated by a low-pressure steam ventilating system in winter and six 12-foot pressure fans, operating in the basement to disseminate air, during the summer. Entrances will be provided on three sides, with large porticoes facing on Rampart, St. Ann and St. Peter Streets.

The campaign for the building was inaugurated by the Association of Commerce in 1922. A bond issue for its erection was defeated that year, but passed, after a renewed campaign, in 1926.

CHARLES LAMMOND,
Bureau of New Orleans News.

Attractive Fire-Alarm Station at San Diego

SAN DIEGO, CALIF.—A new central fire-alarm station, located in beautiful Balboa Park, is now in operation in this city.

The building is of reinforced concrete and both fire- and quake-proof. It is 1½ stories high, with a half basement, cost $18,000, and an additional $3,500 was spent on furnishings.

The new equipment installed is a decided improvement over the old system, as more room is available for expansion and alarms are speeded up. Four blows to the second are sent under the new system, while previously only two blows to the second were possible. All fire stations are equipped with the latest type 2-circuit speed registers.

The equipment used is all of the Gamewell make and that installed in the new central station, together with the speed registers, cost $65,000.

LOUIS ALMGREN,
Fire Chief.

New Foot-Bridge Speeds Pedestrian Traffic at Chicago Intersection

CHICAGO, ILL.—One of the most interesting features of the new *Daily News* building just across the Chicago River from the busy Loop district is the pedestrian bridge extending from that structure across Canal Street to the Northwestern Station.

For years, the traffic congestion at Madison and Canal Streets has been increasing, due primarily to the thousands of commuters who daily cross at that intersection from the railroad terminal. This pedestrian bridge has already proved so useful that plans are now being considered to carry it over streets and through skyscrapers for three-quarters of a mile to the State Street shopping center.

The improvement actually is the realization of a recommendation made in the report of the Chicago Street Traffic Survey, published in 1926 by the Street Traffic Committee of the Chicago Association of Commerce. In reference to such a bridge, that report said:

"Pedestrian bridges possess utility. There are certain advantages in the form of natural connections which make them more desirable than subways. As an example, the intersection of Canal Street and Madison Street at the Northwestern station is cited. A bridge at this point with connections on the east side of Canal Street, north of Madison, and with the second level of the station, would serve to carry thousands of pedestrians a day over a very congested and difficult intersection."

PEDESTRIAN BRIDGE OVER CANAL STREET IN CHICAGO
This structure connecting the Chicago Daily News Building and the Northwestern Station has relieved traffic at a very congested corner

The project was made possible by the Chicago and Northwestern Railway's leasing eight floors in the *Daily News* building for their general offices, which rendered it mutually advantageous for both parties to install such a connecting link between the two buildings. The engineering department of the railroad estimates that between 30,000 and 40,000 people can now alight from their trains in the morning, walk without change of level across the Canal Street bridge through the concourse of the newspaper structure, and descend 10 feet by a gentle incline to the Madison Street sidewalk just at the west abutment of the bridge over the Chicago River. In the evening, a similar number reverse this procedure, mounting 10 feet by the *Daily News* ramp to their train level, instead of descending 10 feet into Canal Street and then climbing 18 feet of station stairs again to reach their trains.

The bridge itself is 20 feet wide and 11 feet high inside, 100 feet in length and 16 feet above the street level.

C. V. MERRILL,
Assistant Business Manager, Chicago *Daily News*

Corporation Organized Under Civic Auspices Helps Industries

MECHANICVILLE, N. Y.—The combined efforts of city officials and public-spirited citizens outside of the administration have assisted in bringing about a considerable betterment in the industrial conditions of this city. Some time ago certain manufacturing establishments suffered reverses and a number of factories closed. To help meet this situation certain members of the city administration and other civic leaders organized the Mechanicville Industrial Development Corporation with subscriptions from many individuals, the largest being $1,000 and the average about $200; and this corporation proceeded to buy up abandoned factories and to attract new industries to the city. A number of such are now coming, and the corporation is at the present time building a $50,000 factory for the manufacture of shirts. The industries that will use these plants are to pay the corporation 10 per cent per annum of the gross cost.

The corporation will not get much of a financial return, but will be the means of adding considerably to the payrolls of the city's industrial workers, and will add a welcome amount to the city's taxes.

PATRICK J. KENIRY,
Corporation Counsel.

Unique Fire Prevention Survey in East Chicago

EAST CHICAGO, IND.—Accompanied by Boy Scouts and city firemen, 62 insurance field men started out one morning recently to inspect every commercial and public building in East Chicago. Any conditions which might be classified as fire hazards were called to the attention of owners and tenants by this army of inspectors.

The survey was conducted under the auspices of the Insurance Committee of the East Chicago Chamber of Commerce in conjunction with the city's annual clean-up and paint-up campaign. Owing to its central location, the Boy Scout cabin in Riley Park was chosen as the assembly place. Here the field men, the city firemen in uniform and the Scouts, also in uniform, were grouped into teams. Each team consisted of one field man, one fireman and one Scout. The inspection work was directed by Karl D. Weaver, Secretary of the Indiana State Fire Prevention Association.

Each team was provided with red tags, bearing the words "Fix me," which were attached to defective electrical wiring and other faulty appliances considered to be fire hazards by the inspectors. Special stickers calling the attention of owners and tenants to the danger in placing coins or other metal pieces behind fuse plugs, were pasted on the fuse box in every building. Booklets describing specific conditions detected as possible causes of fires and recommendations for their treatment were also left on the premises visited.

All recommendations are followed up, 60 days being allowed in each case for correcting the hazardous conditions. At the expiration of that time, a report is submitted to the local Fire Department including the hazards which still exist.

Another feature of the fire prevention campaign was the home inspection work of public and parochial school pupils. Conditions in the homes were reported through inspection blanks given to all children in and above the fifth grade. These blanks contained 23 questions relating to possible fire hazards in the home, and attached to each blank was a list of 15 points explaining what should be done to reduce these hazards.

The pupils were instructed to keep this list in a prominent place in each home to remind all the members of the family of the dangers involved in permitting hazardous conditions to continue.

Brief talks and fire drills featured the campaign in the schools, under the direction of Thomas R. Dungan, Chairman of the Speaker's Committee of the Indiana State Fire Prevention Association. Fire Chief Arthur M. Newton and all members of the local department cooperated in this educational program.

Two city firemen and two Boy Scouts accompanied the speakers to the schools. Approximately 7,000 pupils heard the fire prevention talks and watched demonstrations by firemen on how to turn in a fire alarm.

Two days of the clean-up week schedule were set aside for these fire prevention activities. It was through the cooperation of the Indiana State Fire Prevention Association that the Insurance Committee was able to bring to East Chicago the field men from all sections of Indiana.

MARY M. BIELECKY,
Secretary, Civic Affairs Division, Chamber of Commerce.

THE ARMY OF WORKERS WHO SCOURED EAST CHICAGO, IND., FOR FIRE HAZARDS
Pictured above are the insurance field men, city firemen, and Boy Scouts, with fire prevention bands on their hats, assembled for their inspection tour

Equipment of Village Fire Departments

Housing

1.—Building

a. Where practicable, buildings used for the storage of fire apparatus shall be constructed of non-combustible materials.

b. The ground floor of the building shall be of concrete, draining to the center and provided with a properly screened drain connection.

c. Both ends of the building should preferably be designed with openings sufficiently large to permit entrance and exit of the apparatus.

d. Each opening shall be provided with easily operable doors mounted on the inside of the structure.*

2.—Location

a. The fire house should be located as near the center of the community served as possible.

b. If the community is on the edge of a water-supply, it is desirable to locate the house near such supply. Wharves should be provided in such districts and so located as to facilitate pumping operations.

c. If practicable, the fire house should be located near a public garage.†

d. If the fire apparatus is kept in a public garage, it shall be in the parking space which will permit the most rapid egress of the apparatus.

e. When the apparatus is located where continued temperatures lower than 40° F. may be encountered, provision shall be made to maintain the building in which the equipment is housed at a minimum temperature of 40° F.

Motorized Apparatus

100.—Motor Pumper and Hose Car

101. A combination pumping engine and hose truck shall be utilized where an adequate water-supply is available. The apparatus shall conform fully to the following requirements.

102.—Gasoline Motor

The motor shall be capable of running the pump at the rated capacities for the several pressures hereinafter prescribed without exceeding 80 per cent of the motor speed at the peak of the certified brake horsepower curve when operating at 120 lbs. per sq. in. net pump pressure and without exceeding 90 per cent of such speed at the other pressure.

103.—Throttle

A suitable hand throttle, of a type which will positively hold in its set position and controlling the gas supply to motor, shall be provided and so located that it can be operated from the ground with discharge and suction gages in full view.

104.—Speed Indicator

The motor shall be provided with a readily accessible and permanently attached speed indicator which shall indicate the speed at which the motor is operating when driving the pump.

105.—Fire Pump

a. The fire pump may be of the displacement, impeller or centrifugal type, carefully designed in accordance with the best modern practice. The suitability of the materials used, the proportions of parts and waterways, clearances, absence of air pockets and flat surfaces under pressure, and freedom from vibration and pulsation of water pressure when running at all speeds, will be considered in judging the excellence of the design.

b. The rated capacity of the fire pump should be not less than 300 gallons per minute.

c. Pump and connections shall be designed to withstand a hydrostatic pressure of 350 lbs. per sq. in.

d. Protection against corrosion and provisions for wear and adjustment shall be ample and thorough.

e. The pump shall be capable of delivering rated capacity in gallons of water per minute against a net pump pressure of 120 lbs. per sq. in. for a continuous period of two hours, with a suction lift of not more than 10 feet, followed by two one-half hour periods of continuous pumping, during one of which at least one-half of the rated capacity shall be delivered at a net pressure of 200 lbs. per sq. in. and during the remaining one-half hour, one-third of the rated capacity shall be delivered at a net pump pressure of 250 lbs. per sq. in. The stops between tests to be only such as are necessary for changing hose and nozzles and under no conditions should the motor be stopped. During and after the tests, the motor, pump, transmission and all parts of the machine shall show no undue heating, excessive strain or vibration, and motor shall show no loss of power, over speed or other defect.

f. The pump shall be able to take suction with a lift of 18 feet in 15 seconds with pump dry. If the pump is of the centrifugal type, the priming device shall be capable of meeting this requirement.

g. The pump shall be provided with the following connections, arranged as outlined.

Two suction inlets, with centers not more than 4 ft. above the ground, with a removable strainer provided inside each inlet.

Two 2½-in. gated outlets, provided with 1-in. hose line drain cock or valve. Three outlets to be provided if pump is of 750 gals. up to 1,000 gals., and four outlets if pump is of 1,000 gals. capacity or more. All couplings shall be National Standard, 3 1/16 in. outside diameter, 7½ threads per in. Adapter couplings shall be provided if local couplings are not National Standard.

One churn or hand relief valve and automatic relief valves, or a pressure regulator, controlling pressure from all outlets.

One or more pressure gages on the discharge side, registering up to 400 pounds, with ¼-in. standard pipe thread connections.

A compound gage on the suction side of the pump registering at least 150 pounds pressure and 30-in. vacuum.

Drain, air relief and priming cocks.

* Installation of doors and door hardware on inside of building avoids an inoperable condition due to inclement weather.

† Garage employee should be a member of department and assigned duties of motor mechanic. In case of night alarms, he should get the equipment in operation and ready for the run.

A New Report of the National Fire Protection Association

Once a rural fire department has been formed and is ready to function, the question of equipment assumes primary importance. To aid places of 5,000 or less that are faced with this problem, the National Fire Protection Association has just published in pamphlet form a report entitled "Rural Fire Departments—Equipment and Organization. "It is designed to serve as a guide for those communities contemplating the purchase of efficient fire-fighting apparatus and also includes an outline of certain essentials of departmental organization as they relate to the operation and maintenance of the equipment."

It is recognized that local conditions vary with respect to purchasing power of the communities, available water-supplies, and areas to be served. Consequently, in this report an attempt has been made to outline the types of apparatus which appear to be the most suitable for these different conditions. Rural communities just planning the organization of a fire department should be sure to obtain a copy of "The Rural Fire Department," published in pamphlet form by the Agricultural Committee of the National Fire Waste Council, Chamber of Commerce of the United States, Washington, D. C., and reprinted in part on pages 94, 95, 96 and 97 of the February issue of The American City. This publication contains detailed information regarding the financing and organization problems of such departments.

In this issue, The American City offers the first portion of the new report dealing with the equipment of rural departments. In the November issue, the sections dealing with the maintenance of equipment and certain organizational details will be presented. Those desiring copies of the pamphlet can obtain them from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass., at 10 cents per copy.

In the report, the word "shall" is intended to indicate requirements; "should" indicates recommendations, or that which is advised but not required; and "approved" refers to approval by the authority having jurisdiction in the enforcement of the regulations.

An air dome or other suitable arrangement to prevent undue vibration or pulsation.

h. Safety catches should be provided to prevent accidental shifting of pump clutch or transmission levers.

i. A positive interference mechanism shall be provided so that the apparatus cannot be propelled while the pump is in operation.

106.—Chemical or Water Tank

a. A standard 40-gal. chemical tank or a water tank of not less than 60 gals. capacity shall be mounted on a convenient place, preferably at the front of the hose body and across the chassis.

b. The chemical tank shall be of copper, tinned on the inside, or of steel, lead-lined or hot-galvanized, and shall be capable of withstanding a hydrostatic pressure of 350 lbs. per sq. in. without showing any marked deformation.

c. The chemical tank shall be provided with all necessary pipe, gages, valves and fittings and with a ¾-in. hose connection.

d. The water tank shall be suitably protected against corrosion and shall be provided with a fill opening not less than 5 inches in diameter. Piping between the tank and the pump suction, and all necessary valves, fittings, etc., shall be provided.

e. The rate of discharge from the water tank shall be not less than 10 nor more than 15 gallons per minute.

107.—Ignition

Where practicable, two separate systems of ignition or a dual system of ignition with two sources of power, one a storage battery and generator and the other a magneto, should be provided and so arranged that motor can be started and run from either one or both. Magneto, generator, timers, spark coils, and wiring system shall be of the waterproof type, fully protected against heat, oil and mechanical injury.

108.—Wiring

All conductors shall be stranded and with an insulation and braid approved for wires carrying currents of the potential employed. When not in conduit, flexible cable or flexible conduit, they shall be protected by an additional flameproof braid and be thoroughly secured in place. All connections shall be made with lugs or terminals mechanically secured to the wire and soldered. All electrical apparatus and wires shall be as far removed from the exhaust and cylinders as good design will permit, and otherwise insulated against heat.

109.—Starting

An electric starting system shall be provided. The storage battery capacity shall be sufficient to operate the starter continuously at ordinary cranking speed, with spark and gas shut off, for a period of 2½ minutes. A crank for starting the motor by hand shall also be provided and attached in position for immediate use. Bumpers and other equipment shall be so installed as not to interfere with cranking the motor.

110.—Cooling System

A water cooling system of sufficient capacity to keep the motor cool under all conditions of service shall be provided. Adequate drain cock shall be installed at the lowest point of the cooling system and at such other points as are necessary to completely remove water from the system. These cocks shall be of such design as not to open accidentally due to vibration. The radiator shall be so mounted as not to develop leaks due to ordinary driving and running strains of service. The construction shall be such that the radiator will not quickly clog or corrode.

111.—Lubricating System

a. Lubrication of all main bearings shall be of the positive pump or gravity feed type, with a capacity of not less than one gallon, and provided with circulating pump and filter, with sight feed or pressure gage attached.

b. Connecting rods and cylinder walls, wrist pin bearings, and cams may have splash lubrication, provided suitable partitions are installed in the crank case.

c. The fill pipe shall be conveniently located and sufficiently large to permit easy filling of oil reservoir when motor is running at full speed.

112.—Carburetor

a. The carburetor shall be easy of adjustment or non-adjustable, and of sufficient size to give maximum power of the motor under all conditions. An adequate means of quickly and effectively priming the engine to facilitate easy starting shall be provided.

b. The air inlet shall be properly hooded or otherwise protected to prevent water from getting into the carburetor.

c. Drains shall be provided in the carburetor for removal of water and sediment.

113.—Gear Ratios

At least two gear ratios or an equivalent device shall be provided between the pump and the engine if the pump is of the displacement type.

114.—Speeds

a. The apparatus shall be provided with not less than three speeds forward and one reverse.

b. A low-speed gear ratio shall be provided such as to give a speed of between 5 and 8 miles an hour at one-half safe maximum motor speed.

c. One or more intermediate gears and a reverse gear shall be provided with ratios such as to facilitate easy operations.

115.—Foot Accelerator

The foot accelerator shall be placed so that it can be easily operated by the driver.

116.—Driving Clutch

a. The driving clutch shall be of such a type as to operate smoothly under all conditions of road service, with a pressure on the pedal of not more than 50 lbs.

b. Clutches requiring constant lubrication of clutch faces are not acceptable.

117—Drive

a. If chain drive is used, there shall be an individual chain from the jackshaft to each driving wheel. Adequate chain adjustment and proper clearance to allow the use of skid chains shall be provided. The jackshaft shall be so designed as to permit its removal without demounting the casing.

b. If the drive is direct to the rear wheels, the rear axle shall be removable without demounting casing.

118.—Steering Gear

The steering gear shall be strong and durable. The steering knuckles and other parts and connections shall be of extra-heavy design, and capable of turning the front wheels at an angle of 25 degrees to either right or left.

119.—Brakes

Two independent sets of brakes, one foot-operated and one emergency, shall be provided. Either set shall be capable of stopping the loaded truck on a 20 per cent grade with the truck going forward or backward. At least one set of brake bands shall be applied directly on the brake drums of the driving wheels.

120.—Tread

The treads of the tires shall be not less than 58 in. nor more than 72 in. center to center.

121.—Wheels

The wheels shall be of the best grade fire department artillery or steel disc type, or their equivalent.

122.—Tires

a. Front tires shall be single and rear tires single, dual or dual tread. The tires should be of standard pneumatic truck type; and of suitable size, proportionate to the weight carried, and not less than S. A. E. or clincher standard dimensions.

b. The department should contract with either the apparatus manufacturer or some local tire dealer for the annual replacement of all tires.

123.—Gasoline Tanks

a. The gasoline tank shall be of copper or steel and of at least 20 gals. capacity. If of steel, it shall be clean and free from scale. All joints shall be lock seams, brazed, welded, or riveted and soldered. Swash partitions shall be provided.

b. Tanks and feed piping shall be so placed as to be protected from mechanical injury and so arranged as to insure a flow of gasoline to the carburetor when going up the steepest grades.

c. The gasoline feed should be preferably by gravity. If a pressure or vacuum feed system is provided, an auxiliary gravity feed tank of not less than one-half hour capacity shall also be provided.

d. The fill opening shall be not less than 1½ in. in diameter.

e. The tank shall be provided with a suitable vent opening and drain plug.

124.—Construction

Frame, springs, radial arms, transmission, differential, axles, shafts and gears, and all other parts of the machine, shall be strong enough to withstand the road speed, practical tests and general service under full load. The machine shall be so designed that the various parts are readily accessible for inspection, adjustment and repair.

125.—Body

a. The body should preferably be of steel, but may be made of thoroughly seasoned hardwood reinforced with forged steel at the corners. The interior of the body shall be smooth and free from all projections such as bolt heads, sharp angles or brackets which might injure the hose.

b. A hand rail of 1 in. or larger heavy

metal tubing shall be provided. It shall extend along each side at least 4 in. above the body, continue to and be securely fastened to the rear. At least four stanchions shall be provided on each side to hold the hand rail securely in place. There shall also be suitable brackets and fittings to carry the equipment hereinafter specified. Baskets, reels, and other appliances shall not be placed over the body in such a manner as to obstruct the proper placing of hose.

126.—Carrying Capacity

The apparatus shall be so constructed as to carry at least 500 ft. of 2½-in. cotton, rubber-lined fire hose, all equipment and eight men, without injury to the apparatus

127.—Hose Basket or Reel

A hose basket or reel having sufficient capacity to accommodate 200 ft. of ¾-in. chemical engine hose shall be provided and so located as not to obstruct the placing of the 2½-in. fire hose in the hose body.

128.—Fenders and Guards

Fenders and guards shall be well braced, firmly secured to the side steps and with good clearance to wheels with skid chains in place. Guards for driving chains shall cover same at all points where broken skid chains might entangle with the driving chains.

129.—Steps

a. Side steps shall be placed between the front and rear wheels extending as close to the front and rear wheels as practicable. The bottom of the steps shall be not less than 14 in. from the ground when the truck is loaded.

b. Rear step shall be at least 16 in. wide.

c. All steps shall be suitably braced and covered with heavy linoleum, rubber or aluminum matting and bound with half oval or angle nosing.

d. Two hardwood pipe cones or threaded metal plates shall be placed on the rear step and so located as not to interfere with laying of hose line.

130.—Seat

a. The driver's seat shall be provided with a high cushioned back and shall be so placed as to permit ample room between the dash and steering gear, throttle and operating devices. The seat shall be of ample size for two men, and provided with mounting handles on each side.

b. If a windshield is provided, it shall be equipped with shatter-proof glass.

131.—Boxes

Locker, tool and battery boxes shall be placed so as to be readily accessible. They shall be strong and of sufficient size and number to conveniently hold all necessary tools and similar equipment.

132.—Towing

Towing hooks or rings, front and rear, shall be provided to permit ready towing of the apparatus and for towing other apparatus.

133.—Electric Lights

One 10-in. searchlight; two 10-in. headlights; one oil or electric tail-light; and one 16-candlepower portable electric trouble light with guard and 20 ft. reinforced waterproof portable cord shall be provided. Electric lights shall be run from the starter storage battery, or a separate storage battery powerful enough to operate all lights without motor or generator at least ten hours. The switches shall be located conveniently.

134.—Horn and Bell

The apparatus shall be provided with one hand-operated, power-driven, or electric horn or siren, one gong at least 14 in. in diameter, one locomotive bell at least 10 in. in diameter, or an exhaust whistle. Control shall be conveniently located for operating the horn, bell or whistle from the driver's seat.

135.—Hydrant Thawing Connections

If the community has a water distribution system with fire hydrants, there should be a ¾-in. pipe connection in the motor exhaust pipe, with a stop-cock at a convenient point, and connection for attaching flexible metallic thaw hose.

136.—Speedometer

The speedometer shall register miles per hour, trip and total mileage.

137.—Bumper

The bumper shall be solid and extra strong and so mounted as to protect lights, radiator, etc. It shall be attached to the chassis and not to spring shackle bolts.

138.—Tools

A full set of automobile tools, a jack and a set of chains for the front and rear wheels shall be provided. An extra set of spark plugs, an extra fan belt and extra links for drive chain (if chain driven) shall also be provided.

139.—Painting and Lettering

The painting and lettering shall be as specified by the purchaser.

140.—Road Tests

The apparatus loaded with the full equipment, 500 ft. of 2½-in. fire hose and eight men, shall meet the following tests:

a. A continuous run of 20 miles within 1 hour, over any route selected by ...., over paved or macadam roads in good condition, but not including any grade over 10 per cent. During this test it shall operate without undue heating or show lack of power and must not exceed a maximum speed of 35 miles per hour.

b. It shall, from a standing start, at the foot of any grade up to 8 per cent on a paved street, attain a speed on the grade of 15 miles per hour within 500 ft. of the starting point.

c. It shall be able to back up a 20 per cent grade.

200.—Motor Chemical Car

201. When sufficient water-supply is not available for use with booster pump, multiple tank chemical apparatus shall be employed.

202. Multiple tank equipment should consist of not less than two 40-gal. tanks with proper bypass connections so that a continuous stream can be maintained.

203. In so far as the foregoing specifications for pumpers apply, they shall be used in determining the suitability of this apparatus.

204. The chemical tanks shall be of copper heavily tinned on the inside, or of steel, lead-lined or hot galvanized; and shall be sufficiently strong to withstand a hydrostatic pressure of 350 lbs. per sq. in. without showing any marked deformation. The necessary brass pipe, gages, valves and fittings shall be provided. Cleaning and blow-off valves and pipe shall be so placed that the discharge will not injure the paint.

205. Not less than 12 extra chemical charges shall be on the truck at all times.

300.—Accessory Equipment

301.—Hand Fire Extinguishers

The number and type of hand fire extinguishers noted below shall be mounted on both pumper and chemical apparatus in addition to the equipment previously mentioned:

*One 2½-gal. soda-acid extinguisher (fire department type)
One 2½-gal. foam extinguisher (fire department type)
Two 1-quart carbon tetrachloride extinguishers or the equivalent

302.—Accessories for Both Pumpers and Chemical Cars

The following accessories shall be provided for both pumper and chemical apparatus:

One 12-ft. ladder with folding hooks
One extension ladder to extend 24 ft.
One axe
Two fire department lanterns, nickel-plated
One 10-ft. pike pole
One shovel
One 3-ft. crowbar
One 50-ft. length of 1½-in. manila rope
Two 12 x 12-ft. salvage covers

303.—Additional Accessories for Pumpers

The following additional accessories shall be provided for pumpers:

Two play pipes with shut-off nozzles provided with 1- or 1¼-in. smooth bore tips
Two play pipe cones or screw holders
Four lengths, 10 ft. each, smooth bore, rubber suction hose, reinforced with brass wire or copper-coated wire, and provided with suitable couplings
One metal strainer for suction hose
Six hose straps
Two spanner wrenches

304.—Hose

a. It is recommended that departments using pumpers be provided with not less than 1,000 ft. of 2½-in. cotton, rubber-lined fire hose, and that at least 500 ft. be kept on the truck and the balance in reserve.

b. Where chemical or water tanks are provided, either as separate equipment or as part of pumper, not less than 150 ft. of 4-ply, ¾-in. chemical engine hose with shut-off nozzle having ¼-in. tip shall be furnished.

305.—Wheeled Extinguishers

a. In very small communities or rural districts unable to finance motorized equipment, not less than two approved 40-gal. (or one unit consisting of two 40-gal. tanks) wheeled extinguishers of the soda-acid type shall be provided.

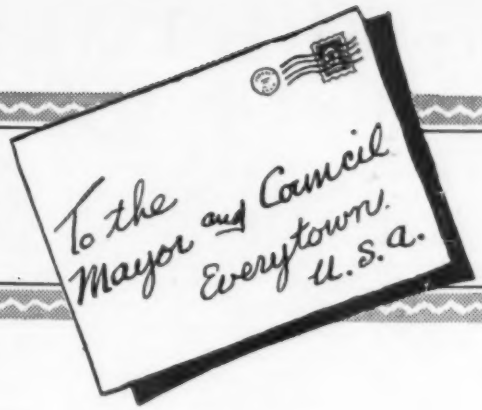
b. Not less than 25 extra chemical charges shall be kept in reserve.

c. Suitable means shall be provided for attaching wheeled extinguishers to motor vehicles.

d. One approved 5-gal. (or two 2½-gal.) foam type hand fire extinguishers shall be provided. The 5-gal. extinguishers shall be equipped with a shoulder strap.

* One 2½-gal. anti-freeze extinguisher or one 5-gal. pump tank extinguisher may be substituted.

A MONTHLY OPEN LETTER



October 1, 1929

Honorable Sirs:

CITY government, like a good many other things in life, requires a good deal of looking ahead. There is no easier way to save time and effort than by a generous application of foresight. On a large scale this means such things as community planning and a comprehensive social budget. It has been wisely said that we pay for good city planning whether we get it or not. But our present concern is not with big things but with an important little thing—the quality of municipal reports.

MOST city reports are not worth the time it takes to throw them in the waste basket. Every year tons of good paper, acres of good trees and gallons of good black ink—not to mention time and money—are uselessly consumed in the preparation of city reports. It is not that our officials are as dull as their reports would lead us to judge. It is not that they are so lacking in imagination and the appreciation of the social significance of their work. Nor is it indifference. It's just bad traditions.

Departmental reports are somehow expected to be dull. But why? Surely, the work of these departments is not dull. It is always interesting and sometimes exciting. The fire department is not only fighting an heroic battle with destruction; it is out to beat last year's record. The health department is engaged in a less spectacular struggle with disease and contagion. Its victories are fully as magnificent. There is no more thrilling story in the annals of American government than the brilliant conquest of yellow fever and smallpox buried away in musty statistics. Other departments are engaged in the less dramatic task of rendering business services. They are laying pavements, cleaning sewers, carting away refuse, caring for parks and playfields. This is work well worth doing.

THERE is next the tradition that nobody reads reports and, as if to be sure that this would be true, they are made doubly dull on this account. Let's admit that this is true and hasten to add that most reports are not worth reading. They are unworthy of the activities they so feebly recount. As a citizen of more than average acquaintance with municipal activities, I find that many of them are quite unintelligible.

Lastly it is assumed that the public cannot understand anything that has any figures in it. This is an egregious insult to a generation that can read a box score, calculate batting averages and standings of teams, work out turf charts and the complicated theorems of probabilities contained therein, penetrate the mazes of short-selling, and fathom an earning statement. Our people have a perfect genius for mathematical complexities. They revel in problems. Ask me another. The notion seems to be that the citizenry run from figures. The truth is that nothing so challenges their imaginations. You may poke all the fun you like at statistics but the folks just like them if there is any intelligent thought behind them.

THIS is no place to lay down rules for good reporting. Others have offered more detailed suggestions.* First bear in mind that your document must serve several purposes:

(1) It is a report to your tax-payers. If public office is a public trust, the people are entitled to an annual account of stewardship. The public wants it brief, readable and prompt. Promptness can be attained only by planning. If office statistics are kept up to date, it ought to be possible to get a report at very short notice. There is no excuse for reports coming out six months to a year after the year with which they deal.

(2) Your report is a permanent comparative record of accomplishment. The reports of all departments or units should cover the same space of time and should be as far as possible uniform in arrangement. And, obviously, if they are to be of any comparative value, their content must be similar each year.

(3) They present an important device of executive control. Besides monthly and quarterly reports which need merely be examined and filed, each department should be required to present a careful review of its work for the year, with its plans for the future. Every such document should have a forward look.

ONE parting shot—do not overlook news interest. Get up a good summary and put that first so that readers may be lured to peruse the whole thing. Enliven it with pictures that are relevant and attractive. Don't fail to include charts and maps where they are pertinent. They are not mere surplusage. They can frequently do what no amount of weary prose could accomplish. And figures—make them honest—give solidity to your generalizations.

Begin now to plan your 1929 documents and aim to have them ready by February 1st. You can do it, too.

Yours cooperatively,

HINTSAND POINTERS.

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* See H. C. Beyle, *Governmental Reporting in Chicago*, University of Chicago Press, $4.00; Wylie Kilpatrick, *Reporting Municipal Government*, Municipal Administration Service, 261 Broadway, New York, 35 cents, and as good examples ask for the latest report of the New York City Police Department and particularly the Mayor's Annual Report for the Year 1928, of Syracuse, N. Y.

What If "Stop and Go" Lights Sometimes Hamper the Flow of Traffic?

SERIOUS week-end traffic congestion, during the summer of 1929, at certain intersections along New Jersey state highways where towns and villages have installed automatic traffic signals, has raised questions as to the possible misuse of such regulatory devices.

Motorists who have been delayed at points on the main highways when returning from the shore or inland resorts, are apt to assume that the traffic lights are the primary cause of their trouble. Officials of the towns operating the signals, however, generally contend that the lights are necessary for the safety of local residents, and that the traffic jams result from narrow highways and bridges, crowding by impatient motorists, and improper policing of approaches to bridges.

For the enlightenment of other municipalities that may be wrestling with this general problem, THE AMERICAN CITY presents here a few of the outstanding comments that have been made on the New Jersey situation. Since the contentions of the motorists were outlined recently in an article and editorial appearing in *The Newark Evening News*, it was thought advisable to request statements from some of the leading manufacturers of traffic signals and also from any of the officials of the criticized towns who might care to comment. The replies of several are published here in part.

From the Motorists' Viewpoint

Some idea of how the motorist feels about the situation may be given from the following excerpts from an article by Eugene J. Zimmer, who investigated conditions for the Newark *News*.

"It is generally known that many traffic signals have been placed where not needed, that others are operated during the entire week when the only justification for their use is the traffic situation on Sundays and holidays, and that still others which are automatically operated would serve their purpose better if they were hand-operated.

"The impression has taken hold of motorists that the installation of these more or less expensive devices is not always dictated by the need for them, but that it is often a case of towns-folk being able to say, 'Oh yes, we have an automatic traffic signal. . . .'

"At any rate, it has become evident that instead of expediting traffic, some of these signals have slowed it up. Motorists perceive in Perth Amboy an outstanding example in this respect, but authorities there give what they consider sufficient reasons for the number of signals operated and the method of their operation.

"The complaint is that there are seven lights in eleven blocks and that they are so operated that one cannot clear them without being stopped at least once, more often twice, and now and then three times. It is further stated that one of these signals protects an unpaved, uncurbed side street from which traffic seldom issues."

Speed versus Safety

From the accompanying discussion, and from previous studies of traffic-control problems, the importance of competent engineering advice in the placing and timing of signals is apparent. That some municipalities have gone to an extreme in the installation of traffic-control devices, no one familiar with the facts can deny;

BUT—

If the use of Stop and Go signals adds appreciably to the safety of the highways for motorists and pedestrians, over that obtainable by any other practicable method, THE AMERICAN CITY believes that such installations are justified, notwithstanding some slowing up of traffic; for even in these days of speed-worship, most persons prefer a late arrival at home to an early one in the jail or cemetery.

An Editorial Comment

Mr. Zimmer cites other instances of apparently excessive signal installation, and an editorial in the *News* supplements his article with the following comments:

"Every motorist on such highways who finds a jam piled up along the approaches to certain communities knows that it is ten to one that a traffic light somewhere up ahead is holding through traffic for local cross traffic that does not exist at the time.

"Traffic-light salesmanship plus local political pressure and compliance have helped to create some of these conditions on New Jersey highways. Drivers afar find the relative absence of signals and the intelligently placed, simply worded, always clearly painted warning signs along Pennsylvania and Maryland highways far more useful, because they appeal to the driver's judgment and muster his discretion instead of relying upon arbitrary regulation of traffic flow by automatons, whether mechanical or human."

Official Opinion in Perth Amboy

Dr. M. F. Urbanski, Director of Public Safety of Perth Amboy, takes a very different view of the traffic-light problem in that city, however, and writes THE AMERICAN CITY as follows:

"Our traffic-light system is the result of the demands of the citizens residing in the locality through which the highway passes. The safety of their children, themselves and the merchants who make a livelihood in the immediate locality must be considered. Since the installation of these lights we have not experienced any deaths among the children.

"We do not wish this statement to be taken as a plea for traffic lights as such. But neither do we feel that traffic lights cause a delay or tie-up of traffic. We are convinced and know, from practical experience as indicated by our traffic officers in charge, that any delay is due to physical encumbrances. The principal contributing factors are the insufficient width of the highway for four blocks north of Victory bridge, the still narrower bridge over the railroad between these blocks, and the improper policing of the highway at the southerly end where it meets the Victory bridge approach.

"Our system was installed in January, 1927, under the personal supervision of Engineer Canfield of the Crouse-Hinds Company of Syracuse, N. Y. We have tried out the so-called progressive system, which worked fairly sucessfully while the traffic was light but failed entirely and tied-up traffic when the flow was heavy. The entire system is operated by hand on busy days with the aid of six traffic officers, three of whom act as "pushers." On days of light traffic, two of the lights controlling cross streets which handle heavy cross traffic are worked manually while the remainder of the system is operated automatically. The timing of the automatic lights is set at 85 seconds on the highway and 15 seconds on the cross streets."

State Highway Department's Opinion

Dr. Urbanski enclosed a clipping from the *Perth Amboy Evening News* which states that representatives of the State Highway Department who have studied the traffic problem along the shore highway declare that the traffic lights are not responsible for the congestion, that the police of that city have been handling the flow systematically and that physical limitations are the primary reason for delays.

What the Manufacturers Think

After perusing the comments appearing in *The Newark Evening News*, C. A. Ward, Sales Manager of the Essco Manufacturing Co., of Peoria, Ill., writes in part as follows:

"It is true that in a great many instances traffic signals are being used at intersections and locations where they are not now needed. It is likewise true that many signals and many controlling devices of obsolete type are still being used. The average manufacturer will, in so far as he is permitted, discourage the use of signals unless their operation is justified. Many signals and controlling devices utilized by cities were purchased because of the low first cost and without regard to advantages afforded in other equipment permitting proper timing and the like. It is safe to say that the proper timing of existing signals would eliminate fully 95 per cent of the complaints now offered, and these changes in the controlling apparatus covering the timing could be accomplished by the average municipality at very, very small expense.

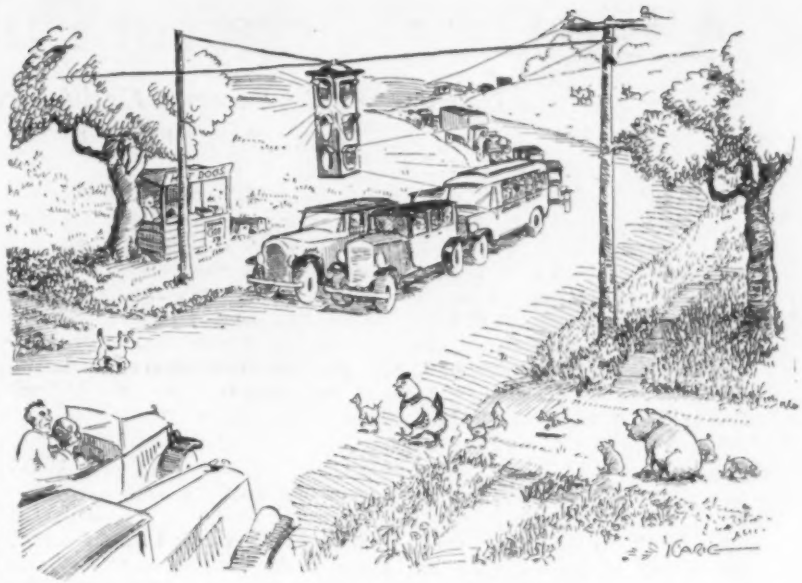
"Present-day manufacturers of traffic-control equipment, in nine cases out of ten, send on a job a representative who is fully competent to offer recommendations not only as to the type of equipment which he would suggest for use, but also as to whether it would be most practical to use electrically-operated "stop and go" signals, automatic or hand-control signals, or perhaps simply flashing beacons, warning signals and other devices now available. Traffic-signal manufacturers appreciate more than the newspapers the harm that may be done to their business by installing signals which are not popular and they analyze this condition strictly from a financial standpoint, which is the best argument that can be offered to any individual.

"Any newspaper or body of men representing any particular locality might well devote some of their time to reading thoroughly and analyzing the recommendations of the American Engineering Council, which is concerned with the standardization not only of signals and signs, but also of traffic movement. These groups then might well devote their time to a sincere effort to promote such standardization. The standardization of signals and signs and a standardized system of moving traffic, if recognized in every state and municipality, will do more to relieve conditions such as described than will criticism directed at a few particular spots."

Always Study Conditions

J. N. Paul, for the Tokheim Oil Tank & Pump Co., of Fort Wayne, Ind., is equally as frank in his letter, in which he says:

"We realize that traffic signals have occasionally been sold by unscrupulous salesmen, either through high-pressure methods or appealing to the pride of small-town officials, and that installations have been made where signals are really a menace rather than an aid to traffic movement. . . .



TRAFFIC CONTROL ON A RURAL HIGHWAY AS IMAGINED BY A CARTOONIST IN THE NEWARK EVENING NEWS

"It has always been the established policy of this company to cooperate with authorities in expediting traffic movement. Equipment is furnished by us only after a careful engineering study shows that a distinct benefit would be derived from a signal installation. We consider any traffic signal not timed for maximum efficiency, or not serving a useful purpose, to be a detriment to our business and to the traffic-signal business as a whole.

"It cannot be questioned that in many cases the signals serve a very valuable and useful purpose, but like any good thing, they frequently are carried to the point of abuse. The real purpose and value of the traffic signal, however, is not always apparent to the passing motorist, and traffic frequently is delayed for safety reasons."

Positive Safety Desired

A third manufacturer who has written to THE AMERICAN CITY on this subject is G. G. Kelcey, Manager, Traffic Engineering Division, American Gas Accumulator Co., Elizabeth, N. J. He presents forcibly the case for the pedestrian — that occasionally surviving individual whose rights to life, liberty and the pursuit of happiness are too often overlooked:

"As manufacturers of Stop and Go signals, we have supported the view that such signals are often known more by their abuse than by their proper use, and we have consistently recommended that unimportant locations be treated in some other way. We have contended that Stop and Go signals are necessary at proper points, but that, in many instances, they should be operated only during those periods of the day when they are necessary, and that at other times they be used as flashing lights to warn of a danger point. To a considerable extent, in the East, this has been accomplished.

"The other side of the controversy was very well expressed last year by Sidney Williams of the National Safety Council, when he presented, in an address, the side of those who install the signals which are most severely criticised. Consider a group of townspeople who are property owners in the vicinity of a state highway. They pay taxes, part of which go to the building of the highway, and they and their children have a feeling, that is often denied to them, that they are entitled to cross the main highway on such occasions as may be necessary. If they cannot, they are denied association with their neighbors, opportunities of education for their children, and the freedom to trade at nearby stores. It is their experience that it is always dangerous, and sometimes impossible, to cross the highway through a solid stream of vehicles that is continuous in both directions from hour to hour and from day to day. When the conditions of congestion do not exist, they and their children are faced with the problem of dodging vehicles operated at speeds of forty miles an hour and, in some cases, sixty miles an hour or better.

"It does not take long for conditions of this sort to fray local nerves, and what is to be done about it becomes one of the paramount local problems. It is not to be wondered at that, after having tried all other possible means such as warning signs, flashing lights and other measures, the local officials finally institute control signals which give positive safety.

"In general, it may be said that discourtesies and lack of consideration on the part of the driving public are responsible for the great number of Stop and Go signals which have been installed at apparently unimportant points."

Other articles dealing with ways of handling motor and pedestrian traffic will be found on pages 101 *and* 143.

A Big City Shops for Public Health

An Account of the Syracuse Health Demonstration

By HETTY LOVEJOY SORDEN

SYRACUSE, N. Y., has definitely gone out during the last six years to buy health for its population of nearly 200,000. Since 1923, its per-capita expenditures for public health have increased from 98 cents to $1.75.

The 1923 city budget allowed $144,000 for the city Health Department and $31,000 for health services in the public schools, or a total of $175,000 for the health service of the two agencies.

The budget for 1929 health services has increased to almost $400,000—an increase of approximately $150,000 in the budget for Health Department work, and an increase of some $70,000 for health work in the public schools.

The story back of this suddenly awakened interest in public health and the story of the progress that has been made through this public health investment in Syracuse is of particular interest and significance to public officials in other cities in the United States.

How the Demonstration Came About

In 1923 the Milbank Memorial Fund made a public announcement of its willingness to enter into a financial partnership with a city in the United States for the purpose of establishing in that city a health demonstration with the intention of showing: (1) How far the application of tried and proved methods in health procedure could succeed in preventing disease and in promoting positive health; and (2) how far it would be possible in a typical American city of medium size to secure local support for such a health program.

The Milbank Memorial Fund was established and endowed by the late Mrs. Elizabeth Milbank Anderson as a memorial to her father and mother, Jeremiah and Elizabeth Lake Milbank. The Fund's avowed purpose, as designated by the founder, is "to improve the physical, mental and moral condition of humanity, and generally to advance charitable and benevolent objects."

Before selecting the locality of the urban health demonstration, the Milbank Memorial Fund made it clear that this was to be a cooperative effort, a demonstration *by*, and not *on*, the chosen community, and that for this reason the whole-hearted interest and cooperation of the various local public and private health agencies would be essential. Syracuse bid for selection as the urban demonstration and was fortunate enough to be chosen.

As a demonstration city, Syracuse has developed a high grade of health work. The people in Syracuse have had their interest awakened. They have watched year by year the development of their local health program and they have not hesitated to demand that the city administration assume financial responsibility for the continuation of demonstration activities, now that the Milbank Fund is gradually withdrawing its support of the general health program in order to concentrate on specific health studies and investigations.

In Syracuse today it is good politics to support the public health program. Recently the Commissioner of Health made this statement: "The other day I asked two public officials why they had supported our public health program. One replied that our health propaganda had been so effectual that the city administration felt compelled to support it. The other felt that the activities had entirely justified their support by the community, that the people wanted them, and that it was good politics to support them."

To other city adminstrations the important facts concerning the Syracuse Health Demonstration are not so much the amount that Syracuse is spending for public health as what public health protection Syracuse is purchasing, and to what good effects. The following statements of the present principal local health activities of Syracuse are of interest.

Achievements in Syracuse

The Bureau of Statistics was officially organized as a bureau of the Syracuse Health Department in March, 1926. It has a perfect score on all of its activities, according to the appraisal form prepared by the Committee on Administrative Practice of the American Public Health Association. In many respects the activities of the Syracuse Bureau of Statistics greatly exceed those suggested by this appraisal form.

The Bureau of Venereal Diseases has charge of all medical, legal and educational measures to control venereal disease. Ten weekly clinics, two of which are evening clinics, are held at the Syracuse Free Dispensary. The work of venereal-disease control in Syracuse has been given a perfect rating for the past three years, according to the American Public Health Association's appraisal form.

The first generalized nursing service undertaken by any municipal health department in the state of New York has been inaugurated in Syracuse and is considered probably the outstanding success of the Syracuse Health Demonstration. At the beginning of the demonstration the city Health Department employed nine nurses for specialized services. In 1925, it was decided to organize and carry on the Health Department's nursing service according to a generalized system of nursing. Since then the Bureau of Nursing has supplied nursing service for the following clinics of the Health Department: prenatal, baby, preschool, vaccination, diphtheria prevention, chest, diagnostic, infantile-paralysis after-care clinics, with the addition of a whooping-cough clinic during five months of 1926. Only the venereal-disease clinics have their own nurses. All field nursing activities were given a perfect rating in Syracuse in 1927 by the appraisal committee of the American Public Health Association.

The infantile-paralysis after-care clinic was established in February, 1925, for the purpose of aiding paralyzed children to make the most complete recovery possible. A trained physiotherapist was brought to Syracuse by the Milbank Memorial Fund in February, 1925. A year later the city Health Department assumed her salary. At first the principal clinic treatments consisted of muscle training, baking, and other usual methods. Early in 1927 the Young Women's Christian Association made it possible to give warm-water treatments in its swimming pool each week. It is believed that these warm-water treatments have been very successful in influencing certain children to aid themselves who have previously had difficulty in this respect.

The Bureau of Communicable Diseases was given a rating of 164 points out of a possible 175. A non-epidemic period of diphtheria has prevailed in Syracuse since 1924. Each year intensive campaigns for diphtheria immunization are carried on by the Department of Health in cooperation with the school health service and the State Department of Health. In the 1927 spring drive, the Onondaga Health Association also cooperated. In that drive 10,000 children were immunized; of this number 2,000 were children under five years of age.

Tuberculosis case reporting has been excellent in Syracuse for the past six years. The Committee on Administrative Practice of the American Public Health Association gives full credit on its appraisal form if two or more cases are reported in one year per annual death. In 1927 in Syracuse three cases were reported per annual death. The majority of the new cases came to light through a case-finding survey. In 1927, 36.1 per cent of all tuberculosis deaths were reported as cases a year or more prior to death.

The Federal Bureau of the Census in its mortality statistics for 1924 lists Syracuse as the city having the lowest crude death rate from tuberculosis among all

American cities of 100,000 population and over. Annual reports of the New York State Department of Health indicate that from 1924 to 1927 Syracuse had by far the lowest crude tuberculosis death rate among the seven cities in the state of 100,000 population and over.

Checking Up on Tuberculosis

Eight active cases of tuberculosis per annual death rate were known in the Syracuse Department of Health at the close of 1927. This was due, in part, to an exhaustive searching of records, and to nurses' visits to private physicians in Syracuse for the purpose of checking up information regarding patients said to be under their care and also to obtain case reports for any unregistered cases which the physicians might have. These visits to physicians resulted in a far better understanding of the aims of the Bureau of Tuberculosis than had existed previously.

The tuberculosis hospitalization standard set by the Committee on Administrative Practice of the American Public Health Association was met more than twice over. The patient days for Syracusans at the Onondaga Sanatorium alone numbered 42,174 during 1927.

The rating of activities of the Bureau of Tuberculosis gives this service 99 points for 1927. So far as is known, this rating is unequalled in any other American city in the 100,000 to 250,000 population group.

In the Syracuse public schools there were twelve physicians and twenty-one nurses on duty at the opening of the 1927-1928 school year. In addition, the Department of Public Instruction employs two dentists, four dental hygienists, a part-time orthopedist, a psychiatrist, a part-time refractionist, and a supervisor of health education to protect the health of the school children in the public schools. The special staff employed in the school health service of the Department of Health to supervise the health work in the parochial schools includes four medical inspectors, a dental hygienist, and a health teacher. The Health Department nurses carry on the nursing activities in the parochial schools.

Physical Examination to 20,900

Complete physical examinations during the school year 1927-1928 were given to 20,900 children in the public and parochial schools. These children were chosen in accordance with the established policy of giving each individual child three complete examinations during his grammar-school life, supplementing these with more frequent examinations of those found to have physical defects.

A Bureau of Health Education under the Department of Health arranges for all health publicity in Syracuse. This Bureau assists all other bureaus in getting out their health literature, and conducts a continuous health education campaign through the use of the local newspapers. Radio broadcasting, health parades and pageants and various other devices are resorted to with great success to teach health to the adult as well as to the child population of Syracuse.

THE WELL BABY CLINICS AIM TO KEEP BABIES IN GOOD HEALTH

WARM WATER TREATMENTS ARE GIVEN AT THE INFANTILE PARALYSIS AFTER-CARE CLINICS

SCHOOL CHILDREN DEMONSTRATE A NEW HEALTH ADDITION

Milk plus teeth-building foods, plus a toothbrush, equals good, strong teeth for the youngsters

A Possible Billion Dollars for Better Housing

200,000 Families Could Be Housed with Such an Investment and Numerous Garden Cities Could Be Built

By ALEXANDER M. BING
PRESIDENT, CITY HOUSING CORPORATION OF NEW YORK

AMPLE as are the financial resources of America for ordinary commercial enterprises, it is extremely difficult to secure capital with a limit on dividends to be paid. The total investment in stock in limited dividend companies in the United States does not exceed the sum of $10,000,000. This amount is so small in comparison to the total investment in housing that it would be negligible were it not for the influence which it may be possible for limited dividend companies to exert with even a small amount of capital used wisely in experiments which may indicate to commercial builders better methods of house, block, and community planning. . . .

A great deal could be done for better housing if only a small percentage of the enormous assets of insurance companies could be utilized in some such way. . . . With total assets of $18,000,000,000, the investment of 5 per cent of these assets would mean the vast sum of almost $1,000,000,000 available for better housing. The writer has no doubt whatever that such an investment would be eminently satisfactory to the insurance companies. They could easily earn 6 per cent on the investment (their present earnings average only 5.1 per cent) and there could be little doubt of the safety of the investment or of the enormous social benefits that would follow the use of this vast sum for improved housing and community building.

Two hundred thousand families could be housed with such an investment, and numerous garden cities could be built. . . .

There has also been an investment on a non-profit basis of between $20,000,000 and $30,000,000 by a few wealthy citizens. In some instances, they have built model tenements which have been eminently successful; in others, they have built model communities. With the vast fortunes which have been created in America, it is possible that this form of semi-philanthropic investment may increase sufficiently to become a substantial factor in improving housing conditions. Practically all of the funds referred to have been invested in the last few years. They point the way to a combination of safe investment and a reasonable interest return with great social usefulness. A substantial increase of capital from this source seems probable.

Another possible source of funds for this kind of enterprise consists of the endowments of the large foundations, churches, colleges, and charitable institutions. Total endowments of this kind amount to at least $5,000,000,000, probably considerably more. The funds are at present invested in part in first mortgages, in part in government, industrial and railroad bonds, with an average return of substantially less than 6 per cent. A portion of these funds invested directly in housing would contribute enormously to improving housing and living conditions.

Another source of housing betterment might come from more liberal first mortgages and from cheaper second mortgage financing. It is beginning to be recognized, partly by reason of the experience of building and loan societies, and also from that of second mortgage companies, that the small inexpensive house occupied by its owner furnishes excellent security for loans of a much larger percentage of value than 50 or 60 per cent, the amounts to which savings banks and insurance companies have limited themselves. This is particularly true when interest and taxes are collected monthly. The writer is of the opinion that it would be perfectly safe for lending institutions to increase their loans to 75 per cent of the market value of the small owner-occupied house. Such an increase in many cases would obviate the need for a second mortgage. The lender might make a small charge for lending these extra amounts. The aggregate of these charges would more than offset any losses, and yet the cost to the builder or owner would be very much less than present second mortgage expense.

In the same way a small part of the funds of savings banks and insurance companies could be used safely for second mortgages; a fee could be charged which, while much less than the present cost of second mortgage financing, would be more than sufficient to build up a sinking-fund to offset any losses. If this business were efficiently handled, it could be made a satisfactory and profitable investment for savings banks and at the same time it would contribute greatly toward better housing. It ought in the first instance and for an experimental period to be confined to the investment of surplus funds, so as not to use for this purpose either the capital of the banks or any part of their deposits. The loans might also be limited in size to $3,000 each and confined to houses which, at the time of the loan, are occupied by the owner. It must be admitted, however, that there is little likelihood of the adoption of such a policy. There is a better chance that building and loan associations, which are now permitted to make second mortgage loans in a few states, may be allowed to do so in increasingly large number. It is also to be hoped that at least a small part of the very large philanthropic endowments and foundations may become available for more effective financing of workingmen's houses.

—From a paper presented at the International Housing and Town Planning Congress, in Rome, Italy, September, 1929.

Good Housing at a Profit: Model Apartments for Negroes One Hundred Per Cent Rented

A BANQUET was held in Chicago on August 18 in celebration of the completion and the 100 per cent occupancy of the new $3,000,000 model housing project, and in honor of Julian Rosenwald, who founded and financed the enterprise.*

The Michigan Boulevard Garden Apartments are in the form of a continuous five-story building containing 421 apartments of three, four and five rooms each, so designed as to occupy but 40 per cent of the city block devoted to its development, the other 60 per cent being laid out in gardens, walks, and playgrounds. There is a half-mile of roof garden, with a large sun parlor and community rooms for free use of the tenants, and a nursery school is being established for tenants' children. The building exemplifies, in fact, not only the best architectural planning, but the highest civic and social ideals capable of being brought into such an experiment. Rents are competitive and are based on those of older buildings of a high class in the same section. It is anticipated that a net return of at least 6 per cent on the investment will be realized. The range of rents is from $12 to $20 per room per month, with an average of $16.

"Nobody is more delighted with the building than I am," Julius Rosenwald told the 100 workers for the enterprise

* See THE AMERICAN CITY, March, 1929, page 102. "Decent Housing for Negroes."

who were present at the celebration, generously attributing much of the success already accomplished to those workers. He added: "Fifteen years ago I had a vision of a project of this kind. But it couldn't be done then and give returns. I made up my mind that unless the building could be built and rented on a business basis, there was no virtue in putting it up. It would do more harm than good to rent it for less than market value. It would not be fair competition."

"The completion of the project proves the faith Mr. Rosenwald has put in the negroes of Chicago," George Arthur, resident manager, said. "It proves that the negroes are anxious to live in better, healthier surroundings where they can rear their children and become more solid citizens of a great city."

The occasion was characterized by the completest mutual confidence of those making the building possible, and those for whom it has been made possible. One amusing feature of the program presented by the negro members of the committee was a burlesque production of the misapprehensions as to the nature and purpose of the building that had to be met and corrected during the renting.

An editorial in the *Chicago Evening News* on the day following the banquet was headed, "Good Housing at a Profit," and contained the following paragraphs:

"If this enterprise, which provides in a great city for clean, sanitary and comfortable housing as well as for playgrounds, garden walks, and community rooms, shall prove permanently self-supporting, Mr. Rosenwald's admirable example will be widely emulated. Consequently, white as well as colored families now living amid unhealthful surroundings will receive inestimable benefits.

"Good modern housing at moderate rentals without charity is a demonstrated possibility. But it is a possibility only where enterprise, brains, public spirit and sound thinking are brought to bear on all aspects of the problem. Happily, this rare combination exists in American cities and has only to be directed into channels where it can accomplish immeasurable good."

"Extending the Walls of the Central Library"

THE Providence, R. I., Public Library in 1926 filled the last open storage area in its central building with shelving. At that time the Trustees were reminded that if the customary rate of growth continued, no books could be added after the beginning of 1929 except as an equal number were removed. For about ten years, an extension to the main building, to be made at a cost of approximately $700,000, had been discussed, but no prospect of this relief was in sight.

The solution of the problem came in an unexpected way. In looking about the southeastern section of the city to find more satisfactory quarters for a branch that occupied a rented store, the Associate Librarian found that a church organization which occupied a large brick structure in the neighborhood was about to suspend activities because of the changed character of the community. Briefly, the building (77 feet long, 50 feet high, and with a frontage of 48 feet) was purchased for $16,000. The steeple was removed and a gypsum roof was added supported by steel trusses and columns rising from the foundation. The ceiling of the main story was replaced by concrete and steel; and wire-glass windows in steel frames took the place of the ecclesiastical colored glass.

The first floor, at street level, became a branch library with space for 8,000 books, accommodations for 60 readers, a staff rest room and other facilities. The former auditorium above, a great, well-lighted, fireproof vault, became the shell of a bookstack. In it has been installed the first level of a steel bookstack having a capacity of 75,000 volumes. There is room for three additional levels, making an ultimate capacity of 300,000.

The total cost of the site, building, reconstruction, and equipment was just under $67,000, which is not a large sum for "converting" a decadent church to useful community service and solving an urgent problem of the city library system.

At the recent conference of the American Library Association, Charles E. Sherman, Providence librarian, presented a paper entitled "Extending the Walls of the Central Library," in which he recounted these facts and presented some strikingly interesting points of justification for present-day divergence from the old traditional policy of "all the books under one roof."

It was just about a generation ago, he said, that President Charles E. Eliot of Harvard made his revolutionary plea for the reclassification of library books on a basis of their potential usefulness; a plea, that is, for the separation of live books from *dead* books. Three times in little more than half a century, the President stated, Harvard University had been compelled to consider extending the walls of Gore Hall because of the need of shelf room and the rapidly growing book collection. Harvard could, of course, go on adding more miles of shelving to house more miles of books, but should it? In his emphatic expression of opinion that it should not, he recommended that books that were little used but too valuable to be regarded as junk be housed in a special low-cost storage structure on relatively cheap land and under such management that administration costs might be reduced to a very low point.

Little came of President Eliot's idea at the time. But cheap automotive transportation was to come two decades later, Mr. Sherman reminds us; and today, it is not hard to convince thinking persons that *dead* books, or books that while valuable are used once or less in a half-dozen years, need not be stored on land valued at $50 per square foot, especially when such storage necessitates enlargement of a million-dollar marble, limestone, or brick building.

Broadcasting on Municipal Affairs by Municipal Reference Library

THE Municipal Reference Library of the City of New York has been broadcasting a series of radio talks once in every two weeks on Friday evenings during the year 1929. The Library accepted an invitation extended through the courtesy of Albert Goldman, Commissioner of the Department of Plant and Structures of the City of New York, to broadcast over the Municipal Radio Station WNYC.

WNYC is one of nine municipal broadcasting stations in the United States. It has been in service more than four years now and is undoubtedly the best known of the city-owned and -operated broadcasting stations. Francis E. Taylor in his article, "Civic Education by Radio," refers to it as "the outstanding example of civic education of this kind." Wylie Kilpatrick in his "Reporting Municipal Government" describes WNYC as "a municipal radio station broadcasting balanced programs of which educational and civic questions form a vital part."

Current municipal problems, particularly those of New York City, have been chosen for topics by the Municipal Reference Library as of most interest to the citizens. Each problem has been presented simply and clearly; facts are taken from the most reliable sources, and the citizens are invited to use the books or reports referred to which are available in the Municipal Reference Library.

The following topics have been discussed in the talks by the Municipal Reference Library:

The Battle of the Streets
Public Recreation
New Yorkers
The Life of a Modern City
The City of Islands
Floyd Bennett Field and Jamaica Bay
A Thumbnail History of Governor's Island
This Business of Living Together
A City of Bridges
Where New Yorkers Eat
The Romance of Real Estate
Staten Island
Traveling Abroad in New York City
Along the Piers
How New Yorkers Keep Cool
The Housing Problem
The Chemists' Part in the City's Work

The time of broadcasting is 5:50 to 6:15 P. M. on alternate Fridays. In October the dates are the 11th and 25th, and the talks will continue at two-week intervals thereafter. Rebecca B. Rankin, librarian, has been responsible for the series and gives most of the talks, assisted by various members of her staff.

First Year's Operation of Citizens Aid Building Justifies Centralization of Welfare Groups

By G. K. PLANT

AN institution, unique in the annals of social welfare work, has completed its first year's operation in Minneapolis. The Citizens Aid Building, dedicated to the development of better citizenship, was erected especially to house the city's welfare organizations, and is believed to be without an equal in the United States among structures of its kind. This establishment is not a "community house" nor a substitute for any existing social agency; occupancy is restricted to administrative offices of welfare and philanthropic groups, who continue to operate their plants in various parts of the city as heretofore. Organizations having headquarters in the building include:

Boy Scouts of America
Big Brothers
Camp Fire Girls
Catholic Central Bureau
Children's Protective Society
Confidential Exchange
Family Welfare Association
Girl Scouts
Girls Advisory Club
Infant Welfare Society
International Sunshine Society
Jewish Family Welfare Association
Junior League
Lutheran Welfare Society
Minneapolis Church Federation
Minneapolis Council of Social Agencies (Community Fund)
Occupational Therapy Department and Orthopedic Department of the Visiting Nurses Association
Parent-Teacher Association, Central Council
Public Health Association of Hennepin County
Visiting Nurses Association
Woman's Christian Association
Women's Cooperative Alliance

This structure was erected as a memorial to George Henry Christian, pioneer Minneapolis miller and tireless worker during his lifetime in behalf of the sick and unfortunate, by the Citizens Aid Society, which he founded and endowed.

The purpose of the building is to effect a closer cooperation and correlation among the city's welfare organizations. The Minneapolis Council of Social Agencies, which conducts the Community Funds, has contracted to operate the building for five years for the benefit of the tenant groups. Organizations occupying space do so by invitation. No rentals or interest are received by the Citizens Aid Society, but the cost of maintenance is shared equitably by the tenants. This arrangement exempts the property from taxation.

CITIZENS AID BUILDING IN MINNEAPOLIS
This impressive structure houses just the administrative offices of the welfare and philanthropic groups, which continue to operate their own plants in various parts of the city

What the Building Contains

This Georgian building, designed by Hewitt and Brown of Minneapolis, is the General Headquarters of the army which goes forth to lend a hand on the frontiers of sadness and misfortune. Just within its portals is an inviting sitting-room, where early arrivals may await their fellow committeemen, or staff workers may while away a noon-hour during inclement weather. In its three conference rooms, seating 22, 41 and 68 persons respectively, and its lecture room, seating 88, gather each day some of those citizens who accept responsibility as their brothers' keepers, to carry forward the battle against poverty, disease, delinquency and distress. Here are formulated the policies and plans which salvage broken homes; send visiting nurses to the indigent sick; provide maternity service for unfortunate girls and the "married poor"; care for neglected children, through building-up disintegrating families and operating settlement houses and day nurseries; maintain the dependent aged; conduct infant, pre-natal and pre-school clinics; place undernourished children and needy mothers in summer camps; build strong bodies, clean minds and good characters in boys and girls through organizations such as the Boy and Girl Scouts and Camp Fire Girls; protect and relieve the handicapped and "down-and-out."

The cafeteria and three private dining-rooms facilitate the assembling of busy men and women for committee meetings and provide a club-like atmosphere where staff and board members may discuss their problems with those who speak their language. The best foods at cost is the operating principle, and it does not make a profit. While the cafeteria is open to the public, no attempt is made to advertise it in competition with commercial ventures. During the year 53,474 persons were served.

Auditorium, Library and Basement Garage

The beautifully decorated auditorium has its separate street entrance, check-room and ticket office and seats 432 persons. The stage is completely fitted with footlights, curtains, movie screen, spotlight, projection booth and dressing-rooms. Besides being available to tenant organizations, the auditorium is rented for events approved by the Society. Dinner meetings, serving as many as 300 persons, are also held in the auditorium. During the first year 1,809 meetings attended by 33,279 persons were held in lecture and conference rooms and auditorium.

In the charming early American library, workers and public may consult an experienced librarian in selecting literature bearing upon every phase of social work and related subjects. Many of the 1,200 books are not duplicated in the Public Library, of which this is a branch. Periodicals on public health, psychiatry, mental hygiene, child welfare, parent-teacher activities and world events of social significance are also stocked. In spite of the library's highly specialized and technical character (officials believe it is the first instance of a public library establishing such a separate branch), the atmosphere is one of intimacy and beauty. On a wintry day, the reader may draw a chintz-covered

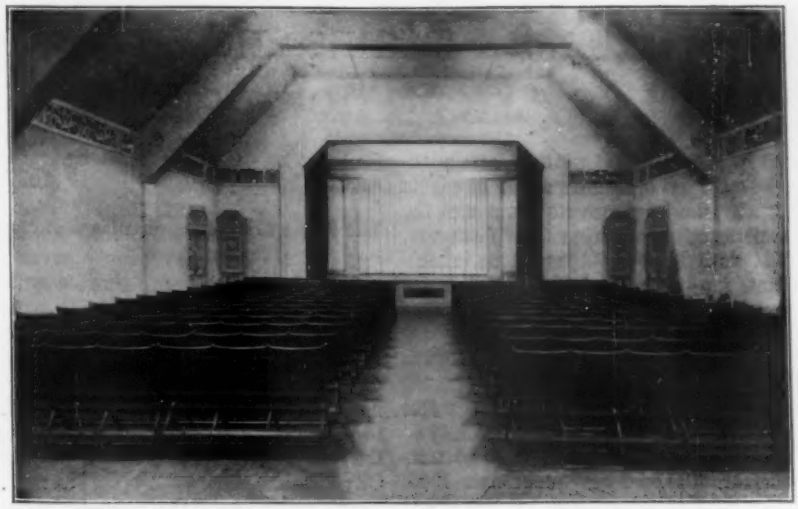
chair cosily before the fireplace. In summer, he may stroll with his book through the French doors and use as a study the flagged and terraced courtyard with its shrubbery and fountain. Volumes may be taken out on any Public Library card and are sent on call to any branch.

In the basement is a 48-car garage for tenants, with greasing and washing service at cost. Each organization has a commodious storeroom. Owing to an unusual layout, the boiler-rooms have access to outside light and air, a triumph of humanitarianism quite in keeping with the spirit which motivates the entire establishment.

The Year's Accomplishments

The second and third floors are given over to separate suites of the charter organizations. Internal arrangements are determined by each independently. Highlights among their accomplishments during the past year are:

59,643 calls upon Minneapolis sick by the visiting nurses.
46,188 individuals were given material relief and service through family service agencies over periods averaging six months.
33,148 visits were made by infant welfare nurses.
1,493 children were assisted and cared for and given home environments in supervised boarding-homes and institutions.
7,244 were assisted in obtaining employment.
591 children of working mothers were placed in day nurseries.
43,270 enrollment in 9 settlement houses.
18,364 attendance at health and baby clinics.
36,154 in character-building organizations for women and girls (not including settlement houses).
29,504 young men and boys aided to better citizenship through character-building organizations.
12,670 helped by the Travelers Aid.
516 aged persons given shelter in homes for old people.
655 unmarried mothers aided.
9,803 persons enjoyed Community Fund camps.
4,141 working mothers and children cared for in free camps.
5,946 free hospital days' care given.
311 blind persons were given aid, education and advice.
12,330 individuals used gymnasiums and shower-baths.
9,263 animals cared for by the Animal Rescue League.



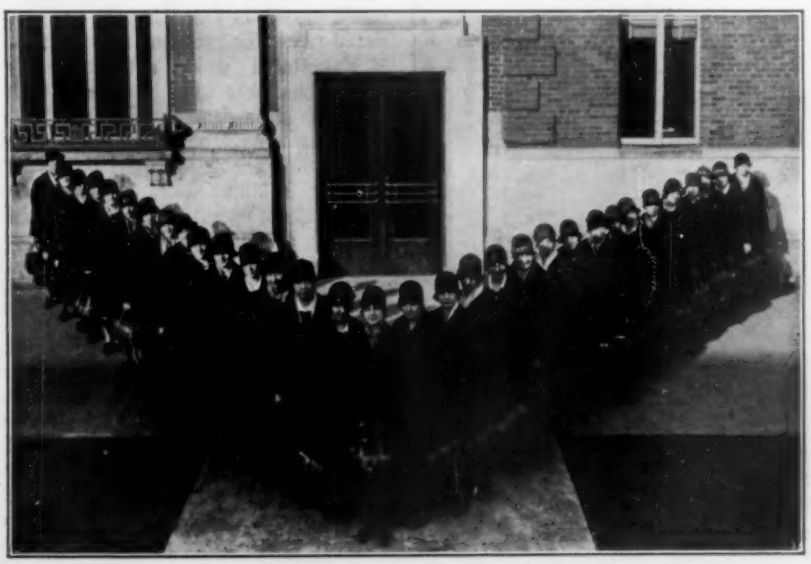
BEAUTIFULLY DECORATED AUDITORIUM WHICH IS USED FOR MEETINGS AND BANQUETS

Economy and Efficiency from Centralization

Savings accruing from the first year's operation justify the policy of centralization, according to Otto F. Bradley, Executive Secretary of the Minneapolis Council of Social Agencies. The central switchboard alone saves $1,500 per year. For the first year, space cost the agencies 85 cents a square foot, whereas the commercial value of similar accommodations runs from $2 to $3. This year this cost will run as low as 75 cents. Central accounting also nets a considerable saving, and the projected joint multigraphing and mimeographing department is expected to cut costs further.

The greatest item of economy cannot be estimated in pecuniary terms—better team-work among agencies which results in the elimination of overlapping efforts. The physical concentration of the several offices makes for closer cooperation, and the confidential exchange is utilized more effectively than when they were widely separated. Also, the constituent groups are in closer touch with the central Council of Social Agencies. Workers have come to know and appreciate each other's problems, and an intensified esprit de corps has been built up. Parties within the building for employees have helped. "Friction is practically non-existent," says Mr. Bradley. A striking feature is the broad spirit of tolerance which prevails—Catholic, Jewish and Protestant groups dwell together in peace and amity and function with mutual good-will.

The experiment of applying advanced business methods, particularly centralization, to a community's philanthropic activities, has aroused much interest, and visitors from all parts of the nation have inspected the institution, many of them persons of means seeking ideas which they might adapt to the benefit of their own communities. Minneapolis is proud to lead the way.



THE VISITING NURSES MARSHALED IN FRONT OF THE NEW BUILDING

More Skyscrapers Heard From

THE Chambers of Commerce of Buffalo, N. Y., and Chattanooga, Tenn., have called attention to the omission of their cities from the list in "A Census of Skyscrapers," appearing at page 130 of THE AMERICAN CITY for September. This omission was, of course, not intentional on the part of this magazine or of the Thompson-Starrett Co., by whom the list was compiled. Buffalo, it is stated, has 26 buildings between 10 and 20 stories in height, and two buildings of 21 stories or more, besides the 33-story City Hall now under construction. Chattanooga reports six buildings of from 10 to 20 stories.

Small City Retains and Improves Utility Plants After Thorough Investigation

In the nation-wide drive for the acquisition of municipal utility plants by the large private companies the experience of the little city of Princeton, Ill., with some 4,000 or more inhabitants, is interesting because of the unusual care with which its officials investigated the situation when an offer was made for the purchase of the local water and electric plants, and because of the facts disclosed regarding the real value of the plants to the community.

Princeton has had a combined municipal water and light plant since 1900. The total of taxes levied for the plants (all prior to 1914) and bond interest and principal amounted to $219,750. No bonds have been issued since 1915, and there are none outstanding. Power had been generated by steam, the engine capacity in 1928 being 1,570 horsepower. By that year the demand for electric power had reached a stage where some means of increasing the supply became desirable, and on August 13, 1928, J. A. Todd, superintendent of the city's Water and Light Department, wrote as follows to the Illinois Power & Light Corporation, which supplies many Illinois cities:

"The city finds it necessary to have some more generating capacity in its electric light and water plant in the near future. We have secured estimates of cost and operating expense on various types of equipment but before going further the Mayor and City Council would be pleased to know whether your company would be interested in selling the city current. If so we would be glad to go into the matter further with you at your earliest convenience."

The Power Company Starts Negotiations for Purchase

Instead of an offer to furnish electric power to the municipal plant being forthcoming from the Illinois Power & Light Corporation, the latter's attorney called upon the mayor, Thos. P. Gunning, to ascertain his viewpoint relative to selling the water and light plants to the company. After conferring with the City Council, the mayor wrote the company's attorney, saying that the Council was not in favor of selling. He expressed the Council's doubts as to the possibility of any company distributing electricity from the switchboard to the consumer more cheaply than the city itself could do, but stated that as it might be possible for a "high-line" power company to deliver electricity to the switchboard at a lower rate than the local plant could produce it, the Council would consider such an offer.

On September 10, without reference to the city's specific inquiry, the company made a proposition to lease the plants for five years, whereupon the city again requested a reply to its first inquiry, also asking what cash prices the company would offer for the plants at the end of a five-year lease period or immediately, and stating furthermore its intention of having an investigation of the matter by competent engineers. The company declined to set a price for electricity furnished to the city plant wholesale, or to state what price it might offer for the plants at the end of a five-year lease, but made a proposal to pay the city $600,000 for the water and electric plants as an immediate purchase.

Mayor Gunning then wrote the company in behalf of the City Council as to the rates that would be charged, and asking: "Will the annual interest on $600,000 in a safe investment, probably approximating 4¼ per cent, yield as much in annual returns to the citizens of Princeton as will the income derived from their present plants?"

The company responded with a proposed rate schedule, somewhat lower than that of the city, stating also that the basis of computing an income from the proposed sales price should be 5¼ per cent instead of 4¼, and presenting various arguments against the continuance of municipal ownership and operation. This was contained in a letter given to the mayor on October 3 and published in the leading newspaper the following day, before opportunity was presented for the City Council's consideration. The latter promptly replied, however, at some length, answering various contentions of the company, saying that the income percentage was figured at United States Government bond interest and pointing out that whereas the company stated that a sale of the plants to it would add to the tax roll, the city plant was now furnishing fire-hydrant service and street lighting with no charge against taxes, that these would have to be paid for from taxes if the company bought the plant, and that this added charge to the taxpayers would exceed the taxes that the company would pay. The proposed rate schedule, it was stated, would not benefit the small consumer, while the increase in taxes would, in general, offset the lower rates that would be available to some consumers. The letter went on to say that by installing a diesel engine the city could cut operating expenses enough to meet the company's proposed rate schedule and pay interest on the engine's cost.

The "Citizens Committee" Appears

A few days thereafter (October 11) the company's attorney proposed in a letter published in the newspaper that a "Citizens Committee" be formed, which should select engineers to appraise the plants. As referred to in a later statement of the Council, these engineers were, in effect, to be paid by the company, but they were supposed to have

THE PRINCETON, ILL., WATER AND ELECTRIC PLANT IN ITS LEAFY, RESIDENTIAL SETTING

The low building on the left houses the engines and generators

no knowledge of such an arrangement, even though set forth in the public press. Such a committee promptly came into existence and hired a well-known firm of engineers.

On October 19 a petition signed by more than three-fifths of the voters and taxpayers of the city was filed with the Council, urging that the city retain the ownership and operation of the water and light plants.

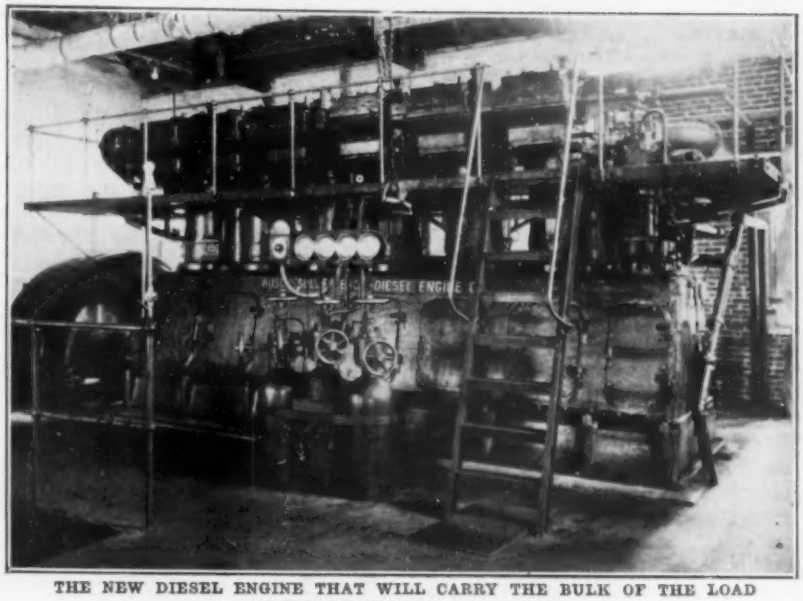
City Obtains Services of Utility Experts

The city during this period had been availing itself of the services of an eminent firm of consultants experienced in advising cities on public utility matters; so when the report of the Citizens Committee's engineers was filed, on February 25, 1929, it was prepared to analyze the report in detail and determine the merits of the situation as a whole. A thorough study of this sort was made, and a reply to the Committee's report was drafted by Mayor Gunning, Commissioner of Public Property Claude Crichfield, and Superintendent Todd, and signed by all five of the commissioners constituting the Council. On August 1, 1929, this was issued to the public in the form of a printed pamphlet, for the particular information of the taxpayers.

This document took up the various aspects of the situation in considerable detail. It discussed certain features of the plants and their operation that had been called in question by the Committee's engineers, and showed wherein the latters' criticisms were not valid. It went into the matter of fire protection, and pointed out that whereas the Committee's engineers had attacked the proposed installation of a diesel engine as insufficient fire protection, reliance on a transmission line in case of a sale of the municipal utilities to the company would be hazardous during storms or in event of other possible interruptions, and that either steam or diesel power should be available in such a circumstance—preferably diesel, because more readily placed in operation.

Diesel Engine Decided Upon

The Committee's engineers had also opposed the adoption of a diesel engine on the score of initial cost, stating that an additional steam engine could be installed for half as much. The Council's reply asserted that the new steam unit suggested would involve other additions not taken into account in the report, including stack, boiler and building enlargement, which would raise the cost to $36,000, as compared with $45,000 for a diesel engine; and that the diesel would save approximately $11,000 per year in operating expenses as compared with the present steam operation. In view of these considerations the Council had decided to buy a 410-kva. Busch-Sulzer diesel engine, which has been installed; it is expected to generate 1,100,000 kwh. the first year, with 700,000 kwh. to be generated by steam. In anticipation of the lowered operating costs the Council also lowered the electric rate schedule, first to the level proposed by the Illinois Power & Light Corporation, and later reduced the top rate for lighting by one cent, and cut the minimum charge for power.



THE NEW DIESEL ENGINE THAT WILL CARRY THE BULK OF THE LOAD AT THE PRINCETON, ILL., PLANT
It is a 600-hp. Busch-Sulzer unit, and was installed in July, 1929

Municipal Ownership and the City's Financial Policy

The Council's reply to the Committee went thoroughly into various financial questions, including depreciation, taxes, free service to the city, and the true net income of the plants. The point particularly emphasized was that municipal ownership and operation, in coordination with other city activities, permits the city to frame a financial policy for the utilities and the city government as a whole that will meet the needs of both to the best advantage.

The municipal activities of Princeton, as is the case with many other cities in Illinois and elsewhere, tend to be severely restricted by the statutory tax limit. The city has seen fit in recent years to keep the tax rate below this limit—in fact, among the lowest in the state for cities of similar size—and by holding electric rates at a level approximately that of surrounding cities served by private companies, to furnish water and electricity free for city purposes, and by other means to contribute, in effect, to the general fund so that a broad variety of service could be rendered to the community, including such items as city hospital benefits, public health nursing service, garbage removal system, ornamental and all-night street lights, motor-cycle police service and sewage disposal works.

Some cities may prefer to make their municipal utilities merely self-supporting, reducing rates to the lowest possible level. Municipal ownership permits this matter of policy to be decided by the officials, whereas the turning over of a utility, particularly an electric system, to a private company, compels all municipal services to be paid from taxes while depriving citizens of effective control over the electric rates.

The Council's statement presented the following alternatives as to the joint financial policy of the city and its utilities:

"First.—If we are to have the present conveniences without having the water and light plant pay taxes, rent and clerk hire amounting to over $12,000 into the general fund, in addition to $25,513 worth of free service they are now furnishing, it will be necessary to raise the taxes to the legal limit in order to provide sufficient funds to maintain the government and in addition, as most cities have done in the past few years, pass an ordinance creating a substantial automobile wheel tax on every car and truck, payable annually.

"Second.—If the tax rate is not raised and these items of taxes, rent and clerk hire are not charged against the water and light plant, it will be necessary for us to discontinue all-night street lights, garbage removal, practically do away with any upkeep upon our streets, discontinue all health service, and cut out a large part of the present police service.

"Third.—If we desire to continue the present conveniences and if we do not desire to have the tax rate raised or money procured from additional taxes, it will be necessary for the water and light plant to take care of all public service

such as street lights, police lights, fire-hydrant rental, city-hall heat, and the electric power used at the sewage treatment and disposal plant. Besides this, it will be necessary for the water and light plant to pay to the general government fund $8,000 in taxes for the year, to pay $1,000 rent per year for the city hall and to pay the salary of two clerks. This the plant can do and still put back into plant improvement approximately $50,000 per year and still give electric service and water service $3,650 per year cheaper than the rates offered under the proposal of the Illinois Power & Light Corporation.

"After carefully considering these three plans, it seems to the City Council advisable to adopt the third plan."

While continuing with the policy of free service for city purposes, the city is nevertheless adopting a new system of accounting, which will keep the utility accounts entirely separate from the general fund, making such charges and credits, even if only book figures, as will show the true relationship at any time it is desired.

A Community Asset of Great Value

After taking careful account of operating revenues and expenses, including depreciation, the statement shows an estimated net income from the city's operation of the water and electric plants for the year ending April 30, 1930, of $31,653, on the basis of no charge against taxes for street lights or fire hydrants. Inasmuch as these would have to be paid for from taxes if the plants were sold, the charge for these services according to the rates proposed by the Illinois Power & Light Corporation, $25,513, was added to the $31,653 in ascertaining the value for purposes of sale, making a total of $57,166. This capitalized at 4¼ per cent represents a value of $1,345,000, or at 5 per cent, $1,140,000. If a maximum of $8,000 taxes which, it had been claimed, the company would pay annually in case of sale of the plant, were offset against the above income, a value in the neighborhood of one million dollars would still be indicated, in comparison with the offer of $600,000. Any such estimates of value depend, of course, upon the maintenance of a given schedule of rates, and should be considered in connection with rate policy regarding municipally owned utilities, on the one hand, and the difficulties of controlling rates once a utility is sold, on the other hand. The following paragraphs of the Princeton City Council's pamphlet are of interest here:

"In asking the Illinois Power & Light Corporation to quote a price for putting electricity upon the Princeton electric switchboard, the City Council had in mind the fact that so long as the city did its own retailing, the matter of prices and service always remained in the hands of Princeton citizens.

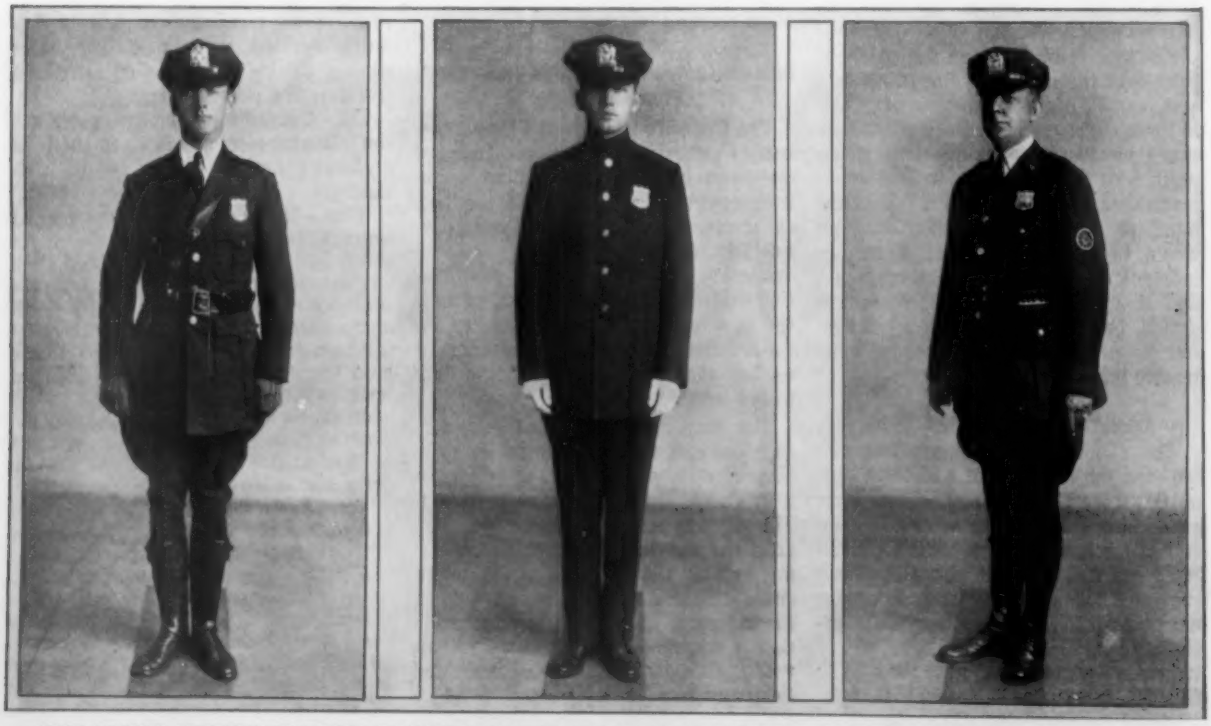
"As soon as any large power company secures control of Princeton utilities, on that day a commission sitting either in Chicago or Springfield will have absorbed all of the regulating powers now vested in the hands of Princeton citizens through their Council. . . .

"In our opinion dependence upon governmental regulation for the assurance of low rates is absolutely futile as is amply demonstrated by the experience of hundreds of communities in this and other states. . . .

Why Not Keep the Benefits at Home?

"The Princeton electric plant at the present time is serving approximately 1,750 consumers. The offer of the Illinois Power & Light Corporation of $500,000 for the Princeton electric plant would mean that this corporation is willing to pay approximately $300 per consumer. It would seem to us that this company must consider the Princeton electric plant a very profitable institution if they are willing to pay $300 for each consumer. We feel sure that the plant is no less profitable to the citizens of Princeton, and we see no reason why any profits derived from the plant should not go to enrich our own citizens rather than to enrich other people in other communities."

New-Style Uniforms Adopted During Summer by New York Police



HOW POLICE OFFICERS IN THREE BRANCHES OF THE SERVICE NOW APPEAR, FOLLOWING THE CHANGE IN UNIFORMS APPROVED THIS PAST SUMMER BY POLICE COMMISSIONER GROVER A. WHALEN

An officer of the mounted force is shown at the left, a foot patrolman in the center, and a motorcycle policeman at the right. All three are wearing the soft-crown cap which is reported to be more comfortable and cooler than the heavier stiff-crown type. The rolled collar jacket, exposing tie and collar, as worn by the motorcycle and mounted officers above, was also a welcome change from the stand-up collar worn by the foot patrolman

More Airports Needed With Growing Acceptance of Air Travel

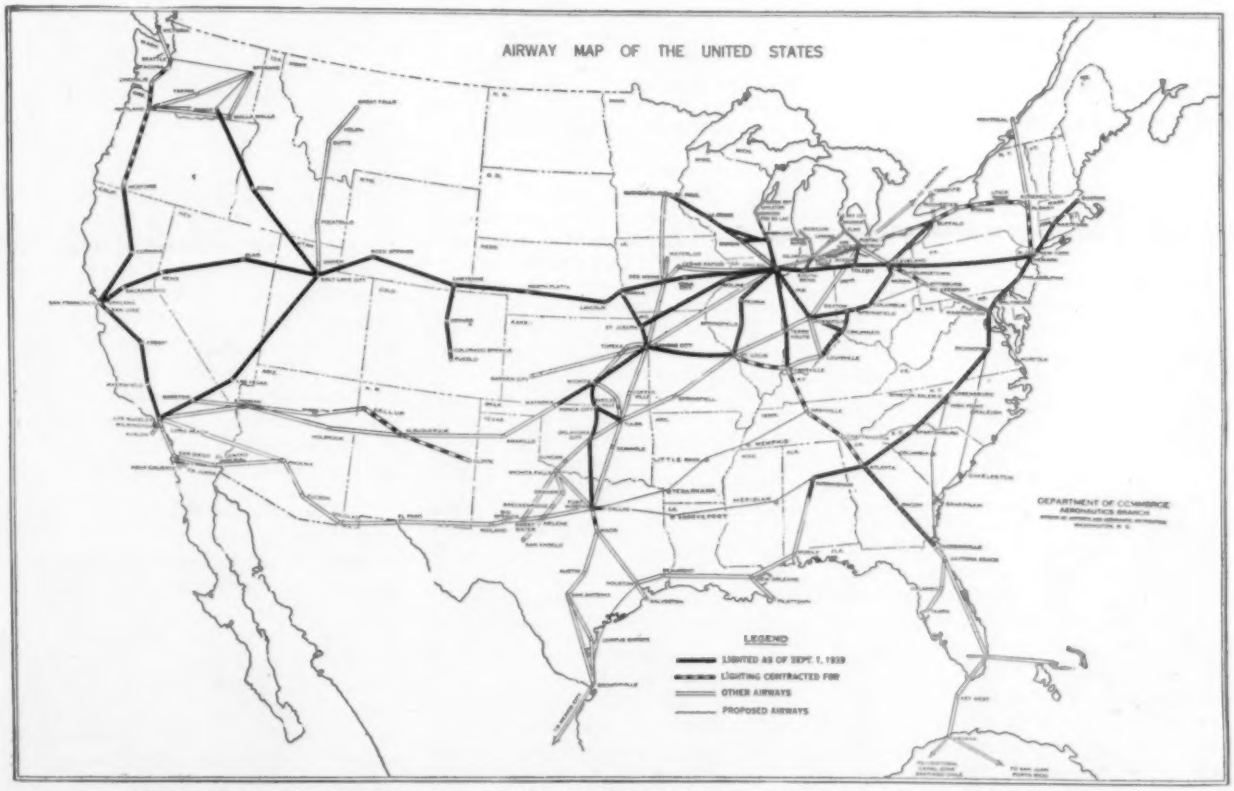
THE airplane is rapidly getting into the class of the railroad as an accepted means of transportation in the United States, and the next ten years will see the skyways charted and filled as the highways are today, believes Ernest Lee Jahncke, Assistant Secretary of the Navy.

Speaking on this subject recently over the radio, Mr. Jahncke added that American cities which recognize this fact and build airports to meet the sky traffic will tap new sources of wealth so great that even the most optimistic are more likely to underestimate than to overestimate them.

"The American cities which ignore the airplane or think that it is a minor factor in their development, before long will find themselves in the same position as the cities that two or three generations ago ignored the railroad. Lack of community foresight in cities and towns that fail to provide airports, can only be compared to lack of foresight in a community which today would build a road fit for three or four buggies when from 150 to 500 automobiles a day would use a modern highway were it built.

"I take the liberty of suggesting to every state and city of America that, by whatever local means are deemed best, a definite program be adopted looking to the immediate financing and construction of modern, adequate airports that meet the requirements of the government."

Mr. Jahncke suggested that instead of remitting to aviators the gasoline tax collected in California for state highway construction, as has been the custom, the tax be collected from them and spent for airports. He said that this suggestion was welcomed and approved there and that perhaps it constituted a means for airport financing which other states might care to adopt.



DEPARTMENT OF COMMERCE MAP OF REGULAR AIRWAYS IN THE UNITED STATES AS OF SEPTEMBER 1

Marking of Highways to Guide Aircraft Is Now Proposed

THE Aeronautics Branch of the Department of Commerce, in connection with its aids to air navigation, has just completed its suggested specifications for the air marking of highways.

Such identification of highways will constitute a real boon to aviators, in the opinion of Harry H. Blee, Chief of the Airports and Aeronautic Information Division of the Department of Commerce.

The Department recommends for this purpose quite simple markings involving in each instance the official route number preceded by the letters "U.S." in the case of Federal highways, or by the state abbreviation for state highways. Wherever practicable, the symbols should be lettered directly on the pavement, using characters from 10 to 30 feet high, depending on the width of the pavement. The markings should read from west to east or south to north, according to the general direction of the highway, and should be placed at all intersections with other highways and at intervals of not more than 20 and preferably 10 miles, along the routes.

Mr. Blee states that any good grade of chrome yellow or white traffic paint, preferably two coats, may be used for this work, but recommends that chrome yellow be used wherever possible. In the case of light-colored pavements the chrome characters may be outlined in black. All these specifications will be included in a bulletin on the subject of air marking soon to be ready for distribution.

Mr. Blee recently made the following comment on the need for air marking of highways:

"A highway, when viewed from the air, stands out very clearly and is, therefore, one of the pilot's best landmarks if he knows what highway it is. As soon as surface arteries of motor travel, particularly the Federal and state roads, are properly marked, to facilitate their identification from the air, they will constitute an extremely helpful aid to air navigation by enabling any pilot to check his position by a glance at the map. The general use of a standard system of air marking that will convey the necessary information to aircraft pilots in the simplest and most effective manner is today one of the most immediately needed aids to air navigation; and it is very important that the highway system of the entire country be properly air marked. It is urged, therefore, that the air marking of highways be undertaken wherever possible."

Industrial Financing Plans—Further Light on Campaigns for New Factories

ADDITIONAL data are offered on the perplexing problem of chamber of commerce activity in seeking new industries, by A. S. Keller, Manager of the Council Organization Division of the Pittsburgh Chamber of Commerce, in a new survey on industrial financing plans.

This latest study, based upon answers from 27 representative organizations to a comprehensive questionnaire, supplements Mr. Keller's previous analysis entitled "Facts and Fallacies of Chamber of Commerce Industrial Activities." *

Divided Opinion on Financing

Of the 27 chambers of commerce questioned by Mr. Keller, 16 replied that they are or have been connected, directly or indirectly, with the organization or administration of industrial financing plans. Composing this group are the chambers at Baltimore, Boston, Chicago, Minneapolis, Cincinnati, New Orleans, Portland, Ore., Rochester, N. Y., Louisville, Toledo, Atlanta, Omaha, Syracuse, Scranton, Easton, Pa., and Wilmington, Del. The following 11 chambers of commerce replied that they have not attempted such activity: Philadelphia, Detroit, Los Angeles, San Francisco, Buffalo, Denver, Birmingham, Memphis, Dallas, Providence, and the Merchants' Association of New York. The establishment of such a fund with the assistance of the Chamber of Commerce is now being considered in Providence. The Chicago Association of Commerce replied that it has been connected only with the preliminary plans for industrial financing, and both the Rochester and Wilmington Chambers of Commerce described their affiliations in that respect as having been indirect.

In 13 of the cities where such a fund has been established by or with the aid of the chamber of commerce, it is still in existence. Of the 16 chambers replying in the affirmative to the first query, however, 3—Boston, New Orleans and Chicago—advise that any such plan has been abandoned. Of the 13 still remaining, Cincinnati states that the plan there is not working successfully; leaving 12 of the original 27 chambers of commerce still engaged in some manner in such financing. These 12 all report that the funds or plans have been of practical benefit, although in two instances the reply "some benefit" was made, rather than a flat affirmative.

Types of Financing Plans

Three general types of financing plans are in existence, Mr. Keller finds, and he describes them as follows:

"The first may be called a Cash Fund plan, under which subscribers have provided the capital of the financing corporation, through the medium of stock purchase. The purpose of this plan is to create a revolving cash fund from which loans may be made to industries. The Louisville Industrial Foundation is a typical example of such a fund.

"A Financing Service plan, such as the Baltimore Industrial Corporation, is another class of these funds. With this type, subscribers provide capital, as in the first type, but its purpose differs in that it is meant to provide a financing service to worthy applicants so that they, in turn, may secure the required capital from other outlets in the community. Small loans are made directly, however, but are made more as an endorsement rather than a direct financial aid.

"The third type is the Credit Fund plan, such as the Easton Guarantee fund. No stock or cash is subscribed in this case. However, subscribers advance credit and empower attorneys-in-fact to tender endorsements in their behalf, thus enabling the applicant to secure the necessary funds from a financial institution. Here the purpose is, as in the first type, to create a revolving fund, through which, as explained, loans may be effected to industrial establishments."

As a fitting introduction to the interesting comments of some of the chambers of commerce regarding these plans, Mr. Keller adds:

"Various degrees of success have resulted through the operation of these respective financing plans. The fact that a plan is successful in one city is no criterion that it may succeed elsewhere. It is interesting to note, further, that those abandoning plans once started have done so either because there is not a legitimate field for such community financing organization or that the subscribed money was lost. Exceptions, of course, are those organized for and completing particular enterprises."

The Case Against the Financing Policy

One of the strongest condemnations of such funds in conjunction with chamber of commerce industrial programs, was offered through the questionnaire by the Los Angeles Chamber of Commerce, which replied:

"General financing through regular institutions seems sufficient. It is a mistake for public or semi-public bodies to finance or endorse securities. Do not believe that the lack of financing facilities is as acute as ordinarily would be believed."

The New Orleans Association of Commerce supports this general view, stating that probably most firms or corporations which need financing could be handled by banks as well. The Chambers of Detroit, Portland, Louisville, Providence and Wilmington, Del., expressed themselves as definitely opposed to the endorsement or recommendation of the securities of private enterprises by chambers of commerce.

A suggestion on the questionnaire that such financing plans too often are the result of overzealousness on the part of a few interested parties or of popular clamor was held to be correct by the Philadelphia, Scranton and Syracuse organizations.

Other testimony against such funds was submitted also by the New Orleans Association, which stated that an industrial financing plan there was abandoned after three years; by the Boston Chamber, where the loss in such an enterprise was overwhelming; by Cincinnati, where the plan has not proved successful because the requirements are too rigid; and by Wilmington, where the movement was abandoned 35 years ago and considerable money was lost.

The Case for the Practice

On the other hand, considerable merit is found in such financing funds by those cities where they have proved both desirable and successful. The financing service plan exemplified by the Baltimore Industrial Corporation is described by the Chamber of Commerce of that city, in its reply, as a private corporation with a semi-civic purpose but primarily a business organization paying dividends. It was founded as the result of an industrial survey of Baltimore, after careful business and financial investigation, and has proved of considerable benefit, the Chamber adds.

The so-called Cash Fund plan in Louisville under the title of the Louisville Industrial Foundation is also reported to be of considerable practical benefit. The Chamber of Commerce in that city asserts, however, that the Louisville plan might not be successful elsewhere, and that its most effective work is in keeping in operation such industries as are now located in that city.

The Credit Fund plan as illustrated by the Easton Guarantee Fund is reported by the Board of Trade of that city as being very effective. Its reply to the questionnaire was:

"Nothing has come to our attention

* See THE AMERICAN CITY for August, page 142.

that could take its place. All loans are made on a sound business basis—first bond and mortgage after thorough investigation. Assets must warrant loan."

Reactions of Other Chambers

Toledo is following the same plan as Easton and finds it successful; Buffalo considers that plans like those in vogue in Louisville, Baltimore and Rochester have merit; and Rochester, where the Chamber of Commerce is indirectly connected with the plan, favors public or semi-public bodies undertaking a certain amount of industrial financing and has proceeded only after careful investigation.

Dallas states that if a financing body is organized there, it will be conducted along the lines of good business and not influenced to place money behind a program that is not meritorious, simply for the purpose of making a showing in the community. Providence, which also is considering such action, is developing its plan very carefully after a thorough industrial survey.

Mr. Keller's study also presents facts regarding the capitalization, administration and operation of several active industrial funds in various cities. For those interested in a more detailed picture of the actual financial assistance rendered through such funds, this portion of the study will prove of interest. Copies of the entire survey undoubtedly can be obtained by writing to the Pittsburgh Chamber of Commerce.

Few Important Industries Relocate

The veracity of Mr. Keller's statement in the August issue that chambers of commerce might better concentrate on retaining and developing the industries now located in their communities rather than seek outside ones, is attested to in the advance statement on a report entitled "Industrial Development in the United States and Canada—a Summary," published by the Metropolitan Life Insurance Company.

More than 2,000 communities supplied data for this survey and reported that during 1926 and 1927 they experienced a total gain of over 10,000 plants, employing more than 371,000 workers. This gain is analyzed, however, in the following statement from the survey:

"An analysis of the facts demonstrates conclusively that the migration of industry, which heretofore has been regarded as of major importance in its relation to industrial development, may be relegated to a rôle relatively smaller in the drama of our economic growth. Relocations accounted for 9.4 per cent of the plants gained by the various communities. The real industrial development came from new industries started within the communities themselves. These represented 81.8 per cent of the total plants gained. Branch plants were responsible for the remainder of the gains and represented 8.8 per cent of the total plants and 25 per cent of the total employees gained."

A final word in the advance statement on this nation-wide survey is worthy of note:

"There is one observation which stands out above all others in the survey: the greatest industrial development comes from self-development rather than from attempting to attract industries from other communities."

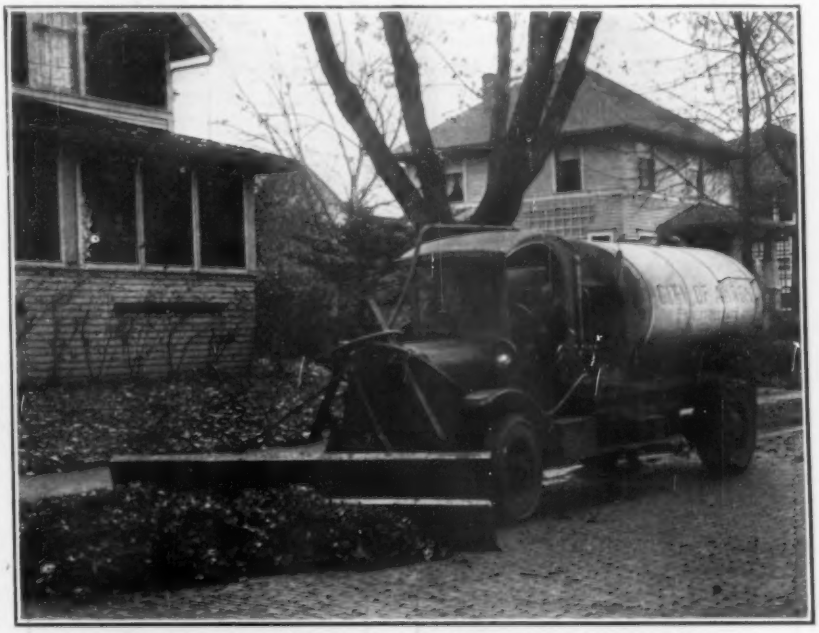
Akron Uses Snow-Plows for Sweeping Leaves

UPON the arrival of cool weather, when the leaves begin to fall, Akron uses snow-plows with a brush attachment to sweep leaves into piles. The method of sweeping leaves, whether by hand or motor sweeper is not satisfactory where streets are densely lined with trees and the fall of leaves is heavy. Henry Dreyer, Superintendent of Street Cleaning, Akron, Ohio, has devised a novel way of pushing leaves into piles so that they may be loaded into trucks and hauled away.

A brush 10 feet wide was constructed of steel wire. The blade of the snow plow was removed and in its place the brush placed on the plow. The results obtained the first day the brush attachment was tried were so successful that several more brushes have been made. The attachment can also be used on light snows or slush where plows are ineffective.

Another advantage in using the brush attachment is that the city is not caught unprepared by very early snowfalls, as all trucks will have the snow-plow equipment attached early in the fall. In a few minutes' time the brush can be removed and the blade replaced for plowing the snow.

Considerable time is saved in the removal of leaves, over the old methods. The brush is inexpensive and should last quite a number of years. When it is worn down, it can be replaced in about one hour's time. This method of sweeping leaves into piles reduces the cost about 50 per cent. A patent is pending on the brush attachment.



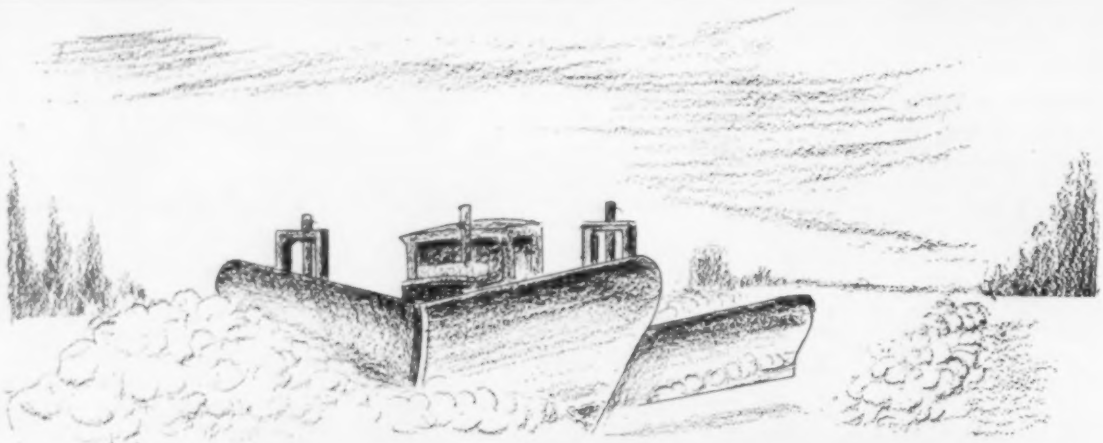
THE NEW BRUSH FOR USE WITH SNOW-PLOW EQUIPMENT DEVELOPED IN AKRON, OHIO

The Money Can Be Found—But How About Intelligent Leadership?

The question in the Region is not where money is to be found to do all that is reasonably necessary, but where the intelligent leadership is to be found that will divert expenditures contemplated to be made, into channels that will be productive of the greatest public good.

If the present bad conditions are due to lack of preventive measures in the past, then it follows that the employment of preventive measures today is necessary to prevent the further growth of bad conditions in the future.

—From The Regional Plan of New York and Its Environs



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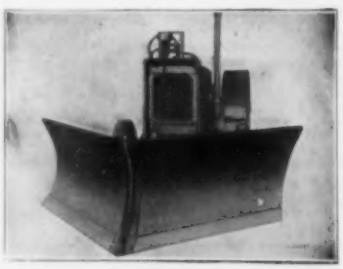
FOR MOTOR TRUCKS AND TRACTORS

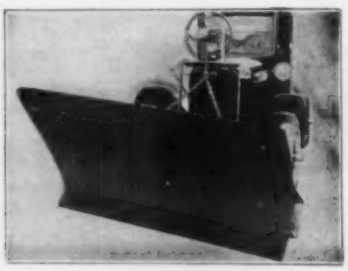
Hitch to Dependable Snow Plows

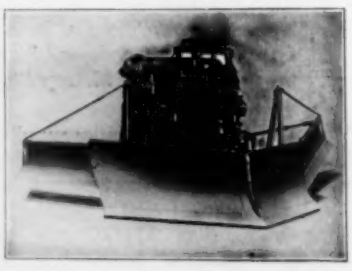
First choice of leading Cities and Highway Departments in the Snow Belt

Your motor trucks and tractors are ideal for snow-moving—but are useful only when hitched to dependable snow plows. Get the most out of your motive power by attaching Baker Snow Plows—time-tested with a record for good service since the first snow plows were built. No highly experimental features are embodied in their construction. Just good strong snow plows built to a snug fit on any standard motor truck or leading industrial tractor. Yet up-to-the-minute with every feature of proven merit.

You are offered your choice from over twenty models of Baker Plows in "V" types with or without wings, blade types with Baker safety tripping blades, rigid blade plows, speed plows, all for your trucks or tractors.







Some of the 20 model of Baker Snow Plows

***The* BAKER MFG. CO. 503 Stanford Ave. Springfield, Ill., U. S. A.**

Please send literature on Snow Plows for .....
(Give name and model of truck or tractor)

Name ..... *Address* ..... *City* ..... *State* .....

503

Mail The Coupon

AN AUTOMOBILE JUNK-YARD IN CONNECTICUT, BEFORE AND AFTER INSPECTION

Ways of Controlling Automobile "Graveyards"

UNSIGHTLY piles of twisted and rusting debris of worn-out automobiles are lowering property values around them and should receive more attention than they do at present, believes Charles C. Mullaly, President of the Homeland Company of New York.

The various phases of the automobile "graveyard" menace must be met in different ways, Mr. Mullaly holds. Privately owned dumps of that type can best be prevented by proper zoning laws; but only rigid enforcement of the present nuisance ordinances and the adoption of new laws will insure the eradication of the "roadside" dumping-ground, he feels.

"Higher fines and a campaign of police activity in following up the ownership of dumped cars by the engine numbers and other means of identification, will be necessary to stop this entirely," Mr. Mullaly declares. "Unless there is some such activity, there are many who always will abandon cars by the roadside rather than pay the cost of cutting them up with acetylene torches and disposing of the smaller pieces.

Two Types of Automobile Dumps

"The automobile 'graveyards' roughly can be classified in two sections. One type is the outgrowth of a roadside garage or repair shop. This is usually on leased ground. The owner of this type of place often started the graveyard with no intention of doing it. The first old car, stripped of its usable parts, was thrown 'out in back.' Others were added, and soon an unsightly pile had gathered to attract similarly abandoned cars. For this type of nuisance, the remedy is zoning. Proper zoning regulations would make recurrences impossible.

"The second type is not so easily dealt with. It grows up along an out-of-the-way road section to which the owner of an old car drives or tows the vehicle, strips it of what can be salvaged, and then leaves it. If he were to dispose of it otherwise, it would cost him from $5 to $15 to have it cut up and smelted. As soon as two or more of these abandoned cars have been left together, others invariably follow. In a very short time, a menace to surrounding properly values is built up—and such a menace is not easily done away with. It is a matter of considerable expense to cover up such places."

Mr. Mullaly contends that if more publicity were given to public incinerators and smelters to which cars may be taken in certain communities, many owners would gladly leave their automobiles at such places. Also, he feels that those who are convicted of abandoning their cars by the roadside to become public nuisances, should be fined more heavily than at present and perhaps be given a jail sentence. Numbers and other identification marks are difficult to remove from cars and these give the police clews to the owners of the cars and open an avenue to enforcement of nuisance laws.

How Connecticut Deals with the Problem

The "Junk-Yard Bill," applying to the business of dealing in old motor vehicles as junk and passed by the 1929 Connecticut Legislature, constitutes one of the most progressive steps yet taken in the regulation of automobile management and trade, according to Robbins B. Stoeckel, Commissioner of Motor Vehicles in that state.

It was the conception of the lawyers interested in the drafting of this law that any draft which prohibited the exercise of what might be property rights, except in a most moderate and reasonable way for the public safety and welfare, would make accomplishment of enforcement a question of constitutionality, Mr. Stoeckel explains in a department bulletin on new motor-vehicle laws of his state. Thus to clean up wayside junk-yards and to prevent a car that had been surrendered for junk from being sold again for use upon the highway in a rundown condition, it appeared that a regulatory law was necessary. On this point Commissioner Stoeckel says:

"The most acceptable theory upon which that might be done appeared to be that of license, so the present motor-vehicle junk-yard bill is a licensing bill. It will govern the business of conducting a motor-vehicle junk-yard through the application to and the granting of a license by the state. The administration is arranged so that it is largely a matter of local government."

Certificate of Approval Required

The definition of what constitutes an automobile junk-yard has been drawn to cover all cases where two or more unregistered motor vehicles unfit for reconditioning for highway transportation are displayed to public view, and where there are enough used parts of old autos to be equal in bulk to two or more cars.

"Before a new junk-yard may be established, a certificate of approval from the local authorities must be secured. The procedure upon which such a certificate of approval is given is set out in the law, and it is possible for any city or town in which the local authority does not wish to act, to turn this duty over to the commissioner of motor vehicles. With respect to those yards which already exist, the law provides that the commissioner of motor vehicles may impose such conditions for establishment, management, and maintenance as he may deem advisable, and prescribes for his guidance a number of criteria to apply in making such decision. The fee for a yard of five acres or less is $50, and for a yard of more than five acres, $100.

"In general, the motor-vehicle junk business, as far as this law affects it, consists of two activities. There are apparently about 100 so-called legitimate destruction units in the state. Their total investment in machinery and equipment for destruction of old motor vehicles, reclaiming of parts and resmelting of metals, is about $2,000,000. Such people unquestionably must remain in the business, and from them the commissioner will require, before licenses are issued, such reasonable correction of offensive conditions as can be made from time to time. The other class includes the 'amateurs,' if one may term them such, who have two or more such cars but who do not intend to continue in the destruction business. These persons will have to obtain licenses under conditions to be given out, or they will have to clear their yards."

Regular and Special Fees, and Penalties for Violations

The commissioner may impose such conditions upon the establishment and maintenance of the junk-yard as he sees fit, taking into consideration the probable effect of it upon the value of nearby property and upon the general welfare, health and safety of the public. If this method is followed, a fee of $25 must be paid by the applicant for the examination of his site, in addition, of course, to the regular license charge of $50 or $100. No license is to be effective for more than one year from the date of issue.

Persons violating this law may be fined not less than $25 and not more than $100, or imprisoned for not more than 30 days, or both fined and imprisoned.

This Snow Loader Holds Its Ground

AND DIGS

Because it is heaviest, strongest and most powerful, the Haiss Snow Loader holds its ground. It digs and loads when lighter equipment slips and slides away.

Haiss Snow Loaders are equipped with a "continuous Crowding Speed" —a ***balanced,*** slow feeding speed that eliminates "charging," "bucking" and "jumping." Instead, a continuous steady advance gives a uniformly high loading speed, makes truck spotting the simplest kind of work and assures full loadings with minimum delay. Capacity: 10-15 cu. yds. per minute.

Fast snow loading takes POWER and where there's plenty of POWER there has to be STRENGTH!

Haiss builds the most powerful snow LOADER.

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HAISS Snow Loaders

Haiss Snow Loaders are built by the makers of the well known successful Haiss Creeper loaders for digging stone, coke, sand, gravel, coal and kindred difficulty handled materials. The world knows Haiss Equipment by its accomplishments!

Regulations for Water Taps and Services—Part II

Abstracts from Pamphlets Issued by Municipal Water Departments and Private Companies

Abington, Mass.

Service pipe is in all cases laid by the water department from the street main to the street line, and from the street line to the cellar is laid by the water department or by the applicant under the supervision of the department. It must be laid at a depth of 4½ feet and terminate with a stop and waste cock. The expense of laying the service pipe from the main to the street line is paid by the town, and from the street line to the cellar, by the applicant. When service pipe is laid in frozen ground, the extra expense is paid by the applicant.

When water bills are not paid within ten days of the date they are due, or for any violation of rules, the water will be turned off and a charge of $2 made for turning it on again.

Malden, Mass.

A charge of $35 is made for laying a ⅝-inch service to the line of the street. All service pipes must be laid at least 4½ feet deep and not within 2 feet of a sewer connection.

In case of non-payment of annual water bills for 60 days after they are due, or semi-annual or quarterly rates 30 days after they are due, a summons will be served. Unless the bills are paid within three days with an additional 25 cents for the summons, the water is shut off. A charge of $2 is made for turning it on.

Northampton, Mass.

The water department will tap the main, attach the corporation stop and locate the service box, the entire expense, including the service pipe, to be paid by the applicant.

To all bills remaining unpaid 15 days after they are due, 5 per cent is added and a further charge of 1 per cent is added on the first of each month until the bill is paid.

Suitable stop and waste cocks must be attached to the services.

Reading, Mass.

The town will furnish and lay the service pipe from the street main through the cellar or basement wall with a stop and waste cock at the end, the owner of the premises to pay for the service pipe laid within his premises, together with the stop and waste valve.

Where bills are not paid for 30 days after they are due, a written demand is left at the premises and unless the bill and 20 cents extra for the demand are paid within 5 days, the water is shut off and an additional $2 charged for turning it on.

Springfield, Mass.

The expense of installing a service pipe from the street main to the stop and waste cock or valve inside the consumer's premises and including the required tap, pipe, meter and other appurtenances, is charged to the applicant. Installation of all service pipes over 2 inches in diameter is subject to prior approval by the Chairman of the Board of Water Commissioners. Every service pipe must be provided with a stop and waste cock located inside the premises, easily accessible and fully protected from freezing, and all pipes must be laid so that they can be fully drained by this stop cock or valve.

If bills remain unpaid for 20 days after they are rendered, the water will be shut off and $2 charged for turning it on.

Tisbury, Mass.

A charge of $15 is made for tapping the main and 10 feet of service pipe. Where the distance from the main to the street line is greater than 10 feet, 75 cents per foot additional is charged. Repair of concrete or fences is charged to the applicant.

In case of violation of rules or non-payment of water bills within 10 days after they are due, the water will be turned off and a charge of $2 made for turning it on.

Wyandotte, Mich.

The following prices are charged by the Department of Municipal Service for the installation of water service lines:

Width of Street	Size of Tap	Price
50 feet	⅝"	$27.30
" "	¾"	35.65
" "	1"	43.70
60 "		
" "	¾"	38.50
" "	1"	47.15
66 "	⅝"	34.80
" "	¾"	41.40
" "	1"	49.45
80 "	⅝"	41.40
" "	¾"	45.45
" "	1"	55.80
100 "	⅝"	48.90
" "	¾"	54.05
" "	1"	64.40
120 "	⅝"	56.65
" "	¾"	62.65
" "	1"	73.00

All service lines 1½-inch and larger will be installed at the cost of time and material, plus 10 per cent.

Any service line larger than 1½-inch is made of Class B bell-and-spigot cast iron pipe. On all taps requiring the breaking of pavement, an additional charge of $15 per tap will be made. On all old iron-pipe service lines requiring replacement, a $10 credit will be allowed on the regular price for the cost of the old tap and all lead services will be repaired free of charge, by the Water Department.

Lake City, Minn.

Licensed plumbers only will be permitted to install water services. The water board will supply a machine for tapping the mains, for which a charge of $2.50 is made. Mains must be tapped midway between the horizontal and perpendicular lines drawn through the center of the main and not nearer than 14 inches to the hub of any pipe. No tap larger than ⅝-inch may be used or inserted in a main and taps must not be less than 12 inches apart.

Service pipe must be one size larger than the tap supplying it, and must be supplied with two stop and waste cocks placed easily accessible so that the water-main can be conveniently shut off and the pipes drained. An inverted corporation curb cock must be placed in the service pipe near the sidewalk line and provided with an approved curb box reaching from the surface to the inverted stop cock. An inverted stop and waste cock of the Minneapolis pattern of the full size of the service pipe must be inserted near the meter on the street side and a lock-wing stop and waste cock may also be required.

Either extra-heavy lead or Byers galvanized iron pipe may be used. At least 18 inches of extra-strong lead pipe must be laid waving between the main and the connecting iron pipe to compensate for expansion and contraction and a brass coupling must connect all lead and iron pipes.

Carrollton, Mo.

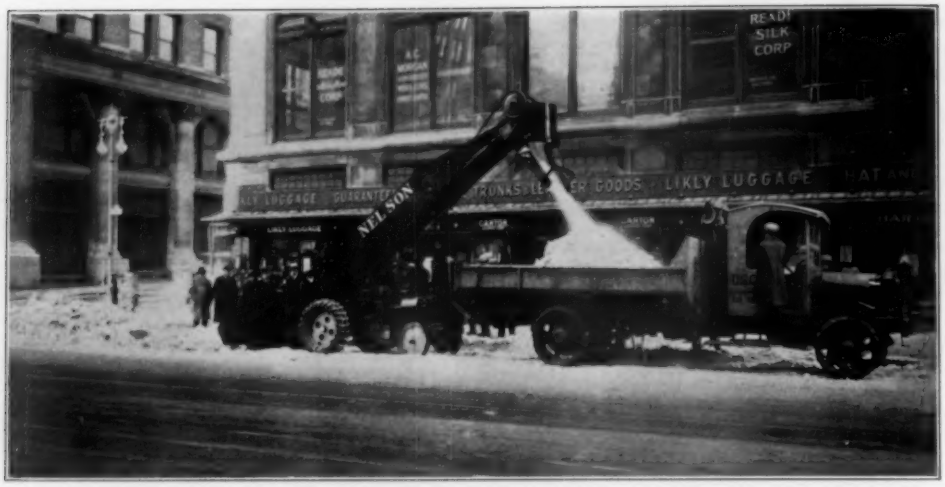
The company will tap all mains and install all corporation cocks at the consumer's expense whenever new or additional service is required. The consumer is required to make all openings in the street and lay the service pipe from the mains to his premises, as well as furnish and install the curb cock. All new services must be provided with a suitable check valve.

Ste. Genevieve, Mo.

All taps in the main must be made by the company's representative. The service pipe, complete with fittings, etc., must be furnished, installed and maintained by the consumer from the company's main to the premises. The service pipe from the main to the meter must be of lead ¾-inch in diameter or larger and must be laid below the frost line and sufficiently waving to allow extra length and in such manner as to prevent rupture by settlement. Only heavy wiped joints will be allowed. The service pipe from the meter into the premises may be of galvanized iron, but not smaller than ¾-inch.

The consumer is required to have a plumber install the meter box in the park-

Dollar for Dollar
or Yard for Yard



The NELSON SNOW LOADER
for High-Speed Snow Removal

will load more snow for less money
than any other snow-loading equipment made

That is why here are
more Nelson Snow Loaders in use
than all others put together

The N. P. NELSON IRON WORKS, Inc.
822 Bloomfield Avenue **Passaic, N. J.**

It does not pay to shovel by hand when one Nelson

does the work of a hundred men

way, terrace or sidewalk of his premises and arrange for the piping to the meter. All services must be provided with a suitable brass curb cock located directly in the curb line or on the inside of the meter box when the meter is located near the street line. A suitable stop and waste cock of Mueller or equal design is required just inside the building. All outlets in service pipe must be provided with air chambers not less than 12 inches long on the ground floor and 10 inches long on the second floor.

The company will tap the main at the expense of the plumber and furnish him with corporation cock, solder nipple, curb cock, stop box, if needed, and meter connections, for the following prices, which include tapping the main:

One ⅝" tap and fittings for ¾" service	$7.50
One ¾" tap and fittings for 1" service	8.50
Two ¾" taps and fittings for 1¼" service	10.00
Two 1" taps and fittings for 1½" service	14.00
Four 1" taps and fittings for 2" service	20.00
Larger sizes at special rates	

If the water bill remains unpaid on the 10th of the month, service may be discontinued after 48 hours notice and a charge of $1 will be made for turning off and restoring the service.

Hamilton, Mont.

The company at its own expense will tap the main and furnish the corporation cock, clamp where necessary, and any other material or labor in connection with tapping the main. All expense of laying and maintaining the service pipes from the mains to the consumer's premises must be borne by the consumer. The service pipe must be laid below street grade and on the consumer's premises at a standard depth to prevent freezing. A curb cock of approved pattern with a cast iron curb box must be installed by the consumer at a point designated by the company. Whenever a tap is made through which service is not immediately desired, the applicant must bear the entire expense of tapping, subject to a refund when regular service is begun.

At some convenient point inside the building and so located that it cannot freeze, a stop and waste cock must be placed so that the water can be readily shut off from the building and the water pipes drained.

For violation of any rules or non-payment of water rent, the company has the right to turn off the water without further notice and it will not be turned on until all back rents are paid, together with the actual cost incurred, not to exceed $1.

The same rules apply to the city of Missoula, Mont.

Dover, N. H.

All service pipe must be 1-inch wrought iron, cement-lined, and will be laid by the city to the inside of the cellar wall, the tenant being charged for the actual cost, measuring from the street line to the end of the pipe inside the cellar wall, as well as for the stop or waste cock which the department will place on the end of the pipe. An extra charge of not less than $10 is made for tapping the main.

A fee of 50c will be collected for turning on water shut off at the request of the owner, tenant or plumber.

Hillsboro, N. H.

The entire expense, including the service pipe and labor for excavation, is paid by the applicant, but the water department pays for, owns and installs all service boxes and all pipe and material used from the main to the service box.

When water has been shut off for violation of rules or for non-payment of rents, it will not be turned on again until there is no further cause for complaint, and a charge of $1 is paid for shutting off and turning on the water.

Rochester, N. H.

The city will lay service pipe from the main to the outside of the curb or walk and a charge will be made to the consumer for tapping the main, furnishing pipe and fixtures, including the corporation cock and suitable connections to the main, stop and waste cock and service box at the sidewalk. Each service must be provided with a round-way stop and waste cock inside the foundation walls, so arranged that the whole system in the building can be drained.

A charge of $1 is made for turning water off and on, for neglect to pay bills or violation of rules, and 50c is charged for turning on water which has been turned off at the request of the owner, tenant or plumber.

Somersworth, N. H.

Service pipe will be provided and maintained by the city from the main to the side line of the street. Service pipes from the street line to the end of the stop and waste cock in the cellar will be provided and maintained by the city at the expense of the water takers. Each service must be provided with a stop and waste cock inside the foundation walls, so arranged that the system within the building may be drained.

Stanhope, N. J.

A charge of $20, payable upon application, is made for a ¾-inch tap in the main.

Great Neck, N. Y.

Where mains are in the streets, the following charges are made for connecting with the water mains:

For inserting ⅝" tap and furnishing ¾" meter and couplings, curb stop, box and valve, $39.
For inserting 1" tap and furnishing 1" meter and couplings, curb stop, box and valve, $52.
For inserting two 1" taps and furnishing one 1½" meter and couplings, valve, one two-branch connection and two goosenecks, $90.
For furnishing and connecting, in ditch excavated by consumer, copper service pipe, per lineal foot: ¾", 60c; 1", 70c; 1½", $1.35.

No lead, steel or iron pipe may be used between the corporation cock and the meter and all services must be laid 4 feet below the surface of the ground. A stop of suitable pattern will be set by the company on the service pipe in the building between the meter and the street.

Water bills are due 15 days from date. If not paid within 30 days, interest at 6 per cent will be charged and the company may disconnect the service on 24 hours notice. Service will not be resumed except upon payment of all arrearages and interest, plus $10 for turning the water off and on and the cost of cutting and replacing pavement.

Newark, N. Y.

All service pipes from the main to the building are laid by the department, as well as all connections to the mains, at the expense of the consumer, the cost to be figured from the center line of the street.

In case of non-payment of rates for 30 days after bill is rendered, or disregard of regulations, water will be shut off and a feet of $1 paid for turning it on.

Saugerties, N. Y.

The commissioners will tap the main at a cost to the applicant of $5 for ½-inch taps and $10 for ¾-inch taps with corporation cock furnished.

Scarsdale, N. Y.

The water department will make taps and furnish corporation cock, goose neck, curb box and curb cock, at the following charges:

¾" tap	$10
1" "	12
1¼" "	30
1½" "	40
2" "	50

All service pipes must be laid at least 3½ feet below the surface.

Bills remaining unpaid after 30 days and up to 60 days will be subject to a penalty of 5 per cent and after that 1 per cent per month additional. If bills remain unpaid at the end of 2 months, water will be shut off.

Watertown, N. Y.

Prices for installing service pipe to the property line are as follows:

¾" service	$2
1" service	7
1½" service	15
2" or larger	20

Hendersonville, N. C.

The Commission will furnish and install a meter and lay the service pipe to the curb at the following prices:

⅝" meter and connection complete	$35
1" meter and connection complete	50
1¼" meter and connection complete	65
1½" meter and connection complete	100
2" meter and connection complete	150

Where a larger connection is desired, the price will be based on the cost plus 10 per cent.

Where accounts remain unpaid, water may be shut off without notice and a charge of $1 made for turning on the supply.

Kinston, N. C.

Charges for water taps are as follows:

¾" taps on dirt streets	$12
¾" taps on paved streets where pipes are installed to curb	5
1" taps on dirt streets	16

Taps above 1" are billed at cost plus 10 per cent.

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"Caterpillar" Tractor and Plow in Buchanan County, Iowa

IOWA had little snow in 1928. It had a deluge in 1929. In two months of 1929, the inability of automobiles to travel cut the state's gasoline tax income $205,668, or nearly enough to pay for snow-removal for an entire Winter (to say nothing of damage to roads or inconvenience to citizens).

"Caterpillar" Tractors equipped with snow plows maintain open roads. They save the highways and maintain the comforts of citizens throughout the year. They increase road income and assure "Business as Usual."

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TEN	$1125	TWENTY	$1975
FIFTEEN	$1500	THIRTY	$2475
SIXTY	$4300		

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New Bern, N. C.

The following charges are made for water taps by the Water and Light Department:

In brick street	$10.00
In shell street	7.50
In dirt street	5.00

Wilson, N. C.

Applicants must pay the cost of all piping and connections between the mains of the water department and the consumer's meters.

Where no pavement is removed, $20 is charged for a 1-inch tap, but where pavement is removed, the cost of removing and replacing the pavement is added. Taps in excess of 1 inch are billed at actual cost connection.

Service will be discontinued if bills are not paid within 15 days from date of bill and will not be restored until all charges have been paid, including $1 for restoration of the service.

Athens, Ohio

The following fees are charged for making taps:

¾" tap on dirt street	$10
¾" tap on paved street	12
1"tap on dirt street	12
1" tap on paved street	15

Any connection larger than 1" is installed at actual cost.

Avon Lake Village, Ohio

Charges for house connection are as follows:

⅝" connection	$35
¾" connection	40
1" connection	50
1¼" connection	62
2" connection	75

Larger connections by special arrangement.

House or curb connections up to and including the curb cock shall be installed by the water department; extension from the curb cock into and through the house shall be at the expense of the property owner.

All house connections beyond the curb box must be of copper, brass, extra-heavy lead or galvanized iron pipe and laid at least 3½ feet below the surface of the ground. A stop and waste cock must be provided to permit draining the service pipe.

If water bills are not paid within 30 days from date, water will be shut off and the water bills become a lien on the property.

East Palestine, Ohio

Charges for tapping mains and running the service line to the curb are as follows:

¾" connection	$8
1" connection	12

Larger connections at cost.

The Department of Public Service will furnish and lay all service pipe from the street main to the outer edge of the sidewalk and furnish and place a stop valve and curb box. The consumer must lay an approved galvanized or lead pipe from the stop valve to a stop and waste in the cellar.

Painesville, Ohio

The entire service connection from the main to the house, except the cost of the water meter, must be paid by the property owner. From the main to a point inside the curb line the work will be done by water-works employees, the cost including the work of excavation and backfill, labor and material for making the tap, furnishing and laying service pipe from the main to the property served and cost of labor and material for the curb box and curb cock. The various charges for such connections are as follows:

½" and ⅝" inch taps, labor and materials	$5.00
¾" taps	7.50
1" taps	10.00
⅝" lead service joints, furnished and installed	3.25
¾" joints	6.00
1" joints	7.50
⅝" curb cock, furnished and installed	2.50
¾" curb cock	2.50
1" curb cock	3.50
2¼" drain curb box	2.25
5¼" drain curb box, 3 to 4 feet high	7.50
5¼" drain curb box, 3½ to 4½ feet high	8.00

The charge for furnishing and laying ¾-inch black wrought iron service pipe, after the applicant has made the necessary excavation, is 15c per foot, the cost of other sizes up to 2-inch being in proportion. For making connection larger than 1 inch in diameter and for all special connections, 15 per cent is charged in addition to the actual total cost of materials, freight and labor. Services from ¾-inch to 2 inches must be of wrought iron pipe and 4 inches to 8 inches of cast iron pipe. All service pipe from the main to the meter must have a minimum coverage of 4 feet below the surface.

All bills must be paid before the 25th, after which the water will be shut off and a charge of $2 made for turning it on. An additional penalty of 5 per cent is added on delinquent bills.

Enid, Okla.

The following charges are made for the installation of new services:

¾" service connection	$18
1" service connection	20
1½" service connection	85
2" service connection	140

For services larger than 2 inches, the actual cost of time and material shall be charged, plus 15 per cent to cover the use of tools and supervision.

Only standard galvanized iron pipe up to and including 2 inches in diameter may be used and must be laid not less than 30 inches below the surface.

Okemah, Okla.

The fee for installation of water service from the main to the curb line, not to exceed 40 feet in length, is as follows:

¾" connection	$15
1" connection	25
1¼" connection	35
1½" connection	45

For larger services and more than 40 feet in length, the actual cost will be charged. When put in under pavements, there will be an additional charge for cutting and replacing the pavements.

All pipes are to be laid not less than 20 feet below the surface.

All service pipe and fittings must be of the best quality galvanized iron, brass, bronze or cast iron, properly treated with asphaltic paint, and all service lines must be provided with an individual cut-off or curb cock, as well as a stop and waste cock at the base for draining the service.

Upon failure to pay water rentals before the 15th of the month, the water will be shut off and an additional charge of $1 made for turning it off and on.

Medford, Ore.

Each application for the use of city water must be accompanied by the following fee:

¾" tap	$10
Double curb tap	15

The actual cost of labor and materials is charged for all other taps.

These charges cover labor and cost of making the tap, cost of furnishing the corporation cock, lead end, union, pipe from lead end to shut-off, shut-off and meter box inside curb line. All necessary excavation must be done by the consumer.

Oregon City, Ore.

The installation of all service pipes of more than 1-inch diameter from the main to a point inside the curb line will be made by the Board of Water Commissioners at a charge for the actual cost of the labor and materials furnished, together with an additional charge of 10 per cent to cover overhead expense. All service pipes must be of galvanized iron. Twelve inches inside of the street, a flat-headed, round-way stop cock must be placed and protected by a suitable box, provided with an iron cover. This will be furnished without charge. Services of 1½ inches or larger must be provided with straight-way gate valves. The service pipe from the main to the wall of the building must be not less than 18 inches below the grade of the street. A stop and waste cock for drainage must be placed just inside the basement wall.

On failure to comply with the rules and regulations or failure to pay water bills, the water may be shut off and $1 charged for the expense of turning the water off and on.

Portland, Ore.

Service pipes of suitable size will be furnished upon application to the Bureau of Water Works at the following charges to cover the labor and materials, including tapping of mains, installation of corporation cocks, curb cocks and connections and such galvanized pipe as may be necessary:

Size of Pipe	Unpaved Street	Paved Street	Cost of each additional foot in excess of 18 feet	
			Unpaved Street	Paved Street
¾"	$20	$32.50	$0.25	$0.90
1"	25	37.50	0.30	1.00

All charges for laying service pipe shall be calculated as if the water main were laid in the center of the street so that a uniform charge may be made to property abutting on the opposite side. In case it is necessary to cut concrete sidewalks and repair them for the purpose of installing the curb cock, an additional charge of $5 is made.

A charge of $1 is made for turning water off and on, in case of non-payment of bills.

(To be continued in the November issue)

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POWER - *for the heavy drifts*

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THE TAXPAYER'S DOLLAR

A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance

Conducted by A. E. BUCK, *National Institute of Public Administration, New York*

Two Notable City Budgets

THE budget-making authorities of many of our larger cities would do well to take note of the budgets which have recently been presented to the legislative bodies of Knoxville, Tenn., and Sacramento, Calif., by the managers of these cities. The presentation in general follows the most up-to-date procedure. As a result, the local newspapers give the budgetary proposals of the manager front-page space in each instance. They also comment editorially on the fiscal policies as set forth in the budget. This means that the managers of both Knoxville and Sacramento have gone a long way toward awakening citizen interest in the finances of the city government.

Manager Neil Bass of Knoxville submitted his budget to the city council on August 27 for the fiscal year beginning October 1. His proposals called for a total expenditure of $4,771,503. This was $14,902 less than the appropriations actually made for the current year. However, this was not as large a reduction as Mr. Bass had hoped to make when he sent out a letter to the departmental heads on July 10 announcing his budgetary policy for the forthcoming year.

Mr. Bass accompanied his proposals to the council by a budget message, outlining at some length the fiscal policies which he recommended for the city government. This message was printed in full in the leading local newspapers, thus forming an excellent source of information for the city taxpayers. It sets forth clearly for the councilmen just where the manager stands with respect to the city's finances. Furthermore, it bears evidence of the fact that he has given some serious thought to the various problems presented. A budget message of this character is certain to provoke discussion not only in the city council but also among the citizens. And, after all, this is one of the important reasons why a budget message should be prepared and presented by the manager.

Manager Harry A. Kluegel of Sacramento presented his budget to the city council with a message on August 12. In his message he made a remark to the effect that "the budget is not merely an instrument of dollars and cents having to do with economy, but determines the fundamental policies of the kind of life lived in Sacramento." While this is reminiscent of the oft-quoted statement attributed to Gladstone, it is perhaps truer today than it was two generations ago.

Mr. Kluegel says that "every effort has been made to arrange a budget which can be met by the average taxpayer, and is at this time compatible with health, growth, happiness and constructive improvement in Sacramento." The operating cost of the city government for the forthcoming fiscal year has been set at $2,299,656, an increase over the current year of $132,000. At the same time a tax reduction on general property of 2.2 cents has been recommended by the manager. The *Sacramento Union* in commenting editorially on the manager's budget says: "All in all, we believe Mr. Kluegel has produced a sound and businesslike plan for the coming year's activities. It is hoped that the council will view the situation likewise."

Philadelphia's Debt and a Proposal for the Future

THE Philadelphia Bureau of Municipal Research gives an analysis of the city's debt in a recent issue of "Citizens' Business." The immediate reason for this analysis is the fact that of this year's tax rate of $2.85, $1.12 is for interest, state tax, and sinking fund installments on city and school district bonds. The gross bonded debt of Philadelphia on January 1 of this year was $530,545,600, or a per-capita of $255.27. Of this amount, $472,559,600 was debt of the city, and the remaining $57,986,000 was debt of the school district. The net debt of the entire city, after subtracting the sinking fund assets, was $416,796,051, or slightly over $200 per capita.

The Bureau thinks that perhaps the most striking feature regarding Philadelphia's debt is its rapid growth in recent years. In nine years, since January 1, 1920, when the present city charter became fully effective, the combined city and school district debt was increased almost threefold. So rapid has been the growth of the debt that this year it takes approximately $35,132,000 of tax money to meet the debt charges.

By following its present policy, Philadelphia becomes in effect an instalment buyer, in the opinion of the Bureau. It purchases practically all its land, buildings, and major equipment, and nearly all its construction work, to be paid for ultimately in instalments running over 15, 20, 30, or 50 years. This is maintained to be a costly method for the city to pursue, even though it may have the advantage in borrowing power and lower interest rates over the private individual. The ease with which the city borrows its funds leads it to spend them for improvements that are costly or that it could get along without.

As a proposal looking toward the future, the Bureau suggests that the Philadelphia authorities prepare and adopt a capital budget extending over five or ten years. It says: "Only by a careful picturing of the entire needs of the city over an ensuing period of years, a careful consideration of the probable income and borrowing power of the city during that period, a rating of the various needs in terms of their relative importance to the city, and the adoption of a program of expenditure, income, and borrowings, can the city use its income and borrowing power to the best advantage. Only by such a procedure can purchases of property and construction of public improvements be undertaken in the order of their respective merits."

Interesting Budget Analyses

ANALYSES of the budgets of Detroit and Kansas City (Kansas) have been recently prepared by the bureaus of governmental research of these two cities. They are interesting as compilations made by private agencies rather than by the local budget-making authorities. Their proposals appear to be twofold: (1) to help the council in passing on the budgetary requirements of the city government, and (2) to aid the interested citizens in getting a better understanding of these requirements.

The Detroit Bureau of Governmental Research has followed the practice for several years of making a digest of the budgetary requirements of that city which is published in pamphlet form. This digest is prepared after the budget has been finally enacted by the city council; in fact, it was published on July 15 of this year, fifteen days after the opening of the fiscal year to which the budget applied. It can, therefore, be of no help to the members of the council in passing on the budget; it is gotten out primarily for the information of the taxpayers.

This digest shows that the Detroit budget now in force totals $152,841,888, which is equivalent to an expenditure of $107.41 for every man, woman and child in the city. This represents an increase of $10,579,545 over the budget of the preceding year. But because of an increase of $119,576,370 in the assessed valuation since last year, the tax rate per thousand is 84 cents lower, or $20.65 for the current year.

The Detroit analysis is concerned primarily with the general expenditures which directly affect the city's tax rate, a table being presented to show how the tax dollar is apportioned among the various services of the city government. It summarizes the authorized appropriations by character groupings, such as operation and maintenance, fixed charges, and capital costs. Following this summary is a

Traffic Movement or Paralysis

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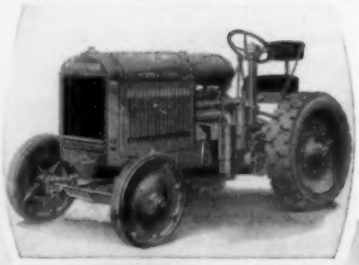

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detailed schedule presenting the appropriations by funds, departments, and activities of the city government.

The analysis of the Kansas City budget is made by the local Bureau of Governmental Research after the budget is proposed but before final action is taken on it by the city commissioners. It is given out to the press and the public before the public hearing by the commissioners on the proposed budget which is usually held during the latter part of August. It may, therefore, have some effect on the action taken by the commissioners.

The expenditures of the Kansas City government are studied in detail. The analysis of each department covers all operating expenses, involving a minute study of all personnel, contractual services, supplies and materials. Comparisons with recognized standards are made wherever possible. The analysis is therefore in the nature of a qualitative as well as a quantitative study. Mimeographed copies of the analysis are gotten out for each department and a summary of the whole study is published.

Opinions differ as to the value of such analyses of those of Detroit and Kansas City. Some think, since they are based on more or less incomplete budget documents, they do not aid in making clear the actual distribution of governmental funds. Others think they help to popularize the budget and are therefore worth while. Their greatest value would seem to depend upon their preparation before rather than after the final action on the budget by the local legislative body. In the cases cited above, the budget document should contain all the information presented in the analyses. But because of the poor arrangement or incompleteness of these documents, it has been deemed advisable to have analyses compiled and presented by private agencies interested in the expenditures of the city governments.

Capital Budgeting Urged for Indianapolis

THE Indianapolis Chamber of Commerce is urging the adoption of a program of improvements by the city government extending over a period of ten years. In a preliminary study made by the Chamber through its civic affairs committee, it points out the great need that exist for the development of such a program. It says in part as follows:

"In order to assure adequate municipal accommodations for a growing city, entailing the least possible burden upon the taxpayers, the time has come when Indianapolis should formulate a long-term program of public improvements. Until now our city's growth and development have been in almost total disregard of any premeditated plans.

"We have kept abreast of the times in budgeting current expenditures, and through use of the budget system very large sums have been saved to the taxpayers. The equally important part of the budget—the budgeting of capital expenditures—we have neglected.

"In Indianapolis, as in many other cities, the practice has been to let our capital improvements spring up out of the suddenly conceived demands of small groups; or, as in the case of the few projects of great moment and cost, to wait until the necessity no longer can be escaped, with the cost increased by the inactivity of past years.

"By a capital program not only will vitally needed improvements be assured, but additional large savings to the taxpayers will be possible."

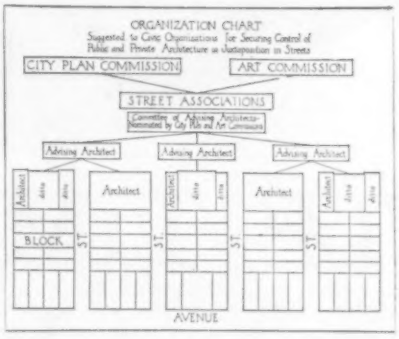
Architectural Control by Organized Effort for New and Widened Streets

AFTER winning a fight for clean streets in lower New York and inaugurating a determined campaign to rid them of push-carts, the East Side Chamber of Commerce sees in the widening of Houston Street an opportunity to secure a thoroughfare rebuilt in accord with a predetermined design. To help make this vision a reality, and as a contribution to the growing movement for architectural control, the Chamber has published as the third of a series of Research Studies of Community Problems an investigation into ways and means of controlling the appearance of this and other new or widened streets.

Having pointed out that city planning and art commissions generally have no jurisdiction over the appearance of private buildings the Chamber's consulting architect and city planner, Harry B. Brainerd, suggests collaboration between those commissions and civic organizations with a view to securing well-considered designs based upon local zoning requirements. He then states the underlying reasons for preparing coordinated block and street designs, making it clear that the work of city planning and art commissions would be supplemented and not encroached upon by the preparation of such designs. Then follows a plea for a study not only of facades but of building masses, as imperative for a real solution of the problem of architectural harmony.

A plan of organization to effect the result desired is indicated by the diagram printed herewith and in the following paragraph from Mr. Brainerd's report:

"The City Plan Commission and the Municipal Art Commission would be expected to nominate a committee of advising architects from which a street association might select as many as it requires to prepare a small-scale design. These advising architects would be expected to distribute



the design among themselves or their delegates, who might elaborate the small-scale studies as needed. When an individual owner is ready to build and has selected his architect, as a member of the street association or property owners association, he would be informed of the project and be expected to instruct his architect to collaborate with the advising architect in harmonizing the design of his building as to material, color, style, silhouette and scale with the general scheme. This could be financed by dividing the usual architectural fee between the two architects, the advising architect receiving one per cent, more or less, according to the amount of service rendered. By this method the street association or sponsoring body would have only the expense of promulgating the idea to its members and keeping it alive while the Municipal Art Commission and City Plan Commission would need only to give the matter its proper share of attention in its program of work."

It is further proposed that legislation be initiated, if found to be necessary, with a view to enabling municipalities to employ deed restrictions running with the land which would require improvers of property purchased from the city to make their plans conform to a municipally recognized scheme of development. In New York State, and perhaps in other states, sufficient legislation to do this much exists, and further legislation may be needed only to assure action and to bring recalcitrant improvers of property into line with the wish of the majority.

Custom and Law Both Effective in Germany

In an address by G. Montagu Harris, O. B. E., M. A., published in the *Journal of the Town Planning Institute*, p. 155 et seq., May, 1928, London, on "Town Planning, City Planning, Urbanisme and Städtebau," Herr Heiligenthal, of Berlin, is quoted as follows:

"It is to be remarked that Munich and Stuttgart, two towns which have accomplished great things and produced excellent results in preserving their old buildings and in esthetic construction, have not the most powerful legal means at their disposal nor the organization to compel enforcement which exist in some towns with much less satisfactory results. In Munich and Stuttgart, in fact, architectural control is not in principle even in the hands of an official body; it works unobtrusively and does not appear at all in the municipal organization. But the results of its labors are everywhere obvious. Even in architecture, good tradition and custom are better than strong laws.

"It is clear that 'Städtebau' is concerned not merely with planning and layout, but also with architectural elevation. Indeed, it is noticeable throughout German practice that one of the principal incidents to which German town planners are expected to pay attention is the 'street picture'—the effect upon the eye of a group of buildings or the vista of a street."

It seems reasonable that inasmuch as every residential or business structure is largely dependent for its revenue on the community in which it is located, such a building owes something to the community supporting it. In other words, if the building does not enhance the appearance of its street, the building, to that extent at least, is parasitic.

The article referred to above has been reprinted and is listed among the available pamphlets noted on page 195 of this magazine under the caption, "Controlling the Appearance of New and Widened Streets."

LITTLE TIME and lots to do—

OCTOBER finds the highway official busy with urgent jobs that need doing before Winter sets in.

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Conducted by JAMES A. TOBEY, Dr. P. H.

This Year's Health Record

IF the record for the first six months is a reliable criterion, 1929 ought to be one of our best years from the standpoint of health, according to an item in the July issue of the *Statistical Bulletin* of the Metropolitan Life Insurance Co. Although the year got off to a bad start, due to an epidemic of influenza in the first three months, the next three were extremely good. The data for these conclusions are based on the mortality experience of the approximately nineteen million industrial policy holders of this company.

In reviewing specific causes of deaths, this bulletin, which is edited by George H. Van Buren, points out that in the first half of 1929 there have been improvements in the death rates of the epidemic diseases of childhood, of tuberculosis, and of puerperal conditions, but increases in diabetes, alcoholism, and accidents, while cancer showed no improvement.

Accidents and Mortality

ACCIDENTS kill more persons in Illinois in one year than were lost in the battle of Gettysburg, according to the leading article in the Illinois *Health Messenger* for September 1, 1929. Only heart disease, cancer, and nephritis now cause higher death rates than do accidents in this state. The automobile is the worst offender in this regard, but the railroads are also serious. Other causes of importance are falls, burns, drowning, mines, and machines. "The most disconcerting feature of accidental mortality," says the article, "is the rapid increase which has marked its course of recent years." There are similar experiences in other states.

Deaths from Suicide

SUICIDE seems to cause an unduly high mortality in the United States, a fact which is causing some concern to sociologists, sanitarians, and insurance officials. In 1926 the rate for the country as a whole was 12.8 per 100,000 population, according to an article in the *Weekly Bulletin* of the California State Department of Health for August 3, 1929.

For some unknown reason the suicide rate in the fair state of California is nearly twice as great as in the country as a whole. Thus in 1928 more than 30 persons out of every 100,000 took their own lives in California, according to the article mentioned. About 60 per cent of these suicides occur in the cities of the state, with exceptionally high rates in San Francisco, San Diego, Stockton, and Sacramento. Most suicides take place between the ages of 45 and 54, though there are nearly as many in the period between 35 and 45 years.

Suicide and homicide have also increased in Illinois, according to an article in the *Health Messenger* of that state for September 1, 1929. Last year there were 1,227 self-inflicted deaths and 783 homicides in Illinois, though a large number of the latter occurred in Chicago. "The growth of city life is probably one of the principal factors in the increased tendency toward suicide and homicide," says this Bulletin.

This is a morbid and depressing subject, but worth mention as one of the real public health problems of municipalities. Accident mortality is another.

School Health

WITH the advent of school days, attention is naturally focused on the health protection of the school child. In a news release issued on August 30, the United States Public Health Service stresses the importance of hygienic surroundings in the school building, the child's second home. The location of the school is significant, such items as traffic conditions and the proximity of nuisances being of importance.

School buildings should be fireproof, not more than three stories in height, and provided with fool-proof doors opening outward. Pure drinking water and adequate toilet facilities must be provided, as well as wash bowls and soap and paper towels. It will be remembered that a survey of state laws on cleanliness made under the auspices of the Cleanliness Institute, of New York, revealed that legal provisions for hand washing in school are frequently conspicuous by their absence in state laws and regulations.

Another news release on school health is that issued on August 28 by Dr. Shirley W. Wynne, Commissioner of Health in New York City. In it he advocates the inculcation of health habits in all children of school age. They should be taught proper nutrition, the need for sane exercise, general cleanliness and personal hygiene, and how to avoid disease. Every child should also, of course, be vaccinated against smallpox and immunized against diphtheria before attending school.

Useful material on school hygiene may be obtained from the United States Bureau of Education at Washington, D. C., and other government departments, and from such voluntary health organizations as the American Child Health Association of New York. The Department of Biology and Public Health of the Massachusetts Institute of Technology, Cambridge, Mass., has an excellent school health appraisal form. The September issue of *Hygeia*, the health magazine of the American Medical Association, is a school number.

Many Child Welfare Agencies

A SURVEY of agencies working with and for children, made by the International Council of Religious Education, reveals 120 such national or regional organizations in North America. Of this number, 52 are concerned with health, while 64 deal with education. Some of the other objectives of these various agencies are sex, parenthood, and family life, in which field there are 27 associations; recreation, with 23 agencies; and citizenship, with 19. The pamphlet of 87 pages embodying the results of this survey, prepared by Mildred O. Moody and Elva M. Westbrook, describes in alphabetical order each of the agencies listed as working in the field of child welfare.

Chambers of Commerce and Public Health

ABOUT 250 chambers of commerce in the United States now have health committees. Of these, 51 have definitely entered the health conservation contest for cities which was outlined in this department last month.

An interesting example of an activity of such a chamber-of-commerce health committee is that of Cincinnati, where a monthly bulletin giving useful facts about public health in that city was inaugurated on August 1, 1929. The first bulletin consisted of a blueprint showing the organization of the local health department, together with a letter from H. M. Wilson, the secretary of the committee, offering information and service in connection with health work.

Recently the Chamber of Commerce in Honolulu was most helpful in aiding in a public health survey of that city, made during the summer by Professor Ira V. Hiscock of the Yale School of Medicine. This chamber of commerce has set aside a fund of $250,000 to control and prevent epidemics in Hawaii.

The So-Called "18-Day Diet"

"THE silly season for fat ladies is on again," starts an editorial in *Hygeia* for September, 1929, in commenting on the so-called 18-day diet which has, unfortunately, attained some vogue in this country. Various other medical and sanitary authorities have united in condemning this pernicious plan for quick reducing. In Syracuse *Better Health* for August, for example, Dr. George C. Ruhland points out that this diet offers less than half of the food value required by the average person to maintain health and strength.

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Whether a person attempts to reduce or not, it should be borne in mind that he or she must have a basic diet consisting of at least 1,500 or 1,800 calories of nutritious food daily. The person not dieting needs more than this, from 2,000 to 3,000 calories, or even more, depending on the race, sex, build, occupation, climate, and other factors. This 18-day affair, sometimes called the Hollywood Diet, offers only about 500 calories a day, and it seems to consist mostly of grapefruit.

No person should reduce or attempt to do so, unless under the direction of a competent physician. There are a number of excellent popular texts on this subject which are useful to supplement the information given by the medical practitioner. In losing weight it must be lost gradually and not rapidly. One trouble with this 18-day is that it will not only reduce weight, but vigor, strength, and mental capacity as well. Any person who values his or her health will keep away from it.

A Life Conservation Service

AMONG the business groups which recognize the value of public health are the life insurance companies, some of which have been very active and prominent in this field. Recently the John Hancock Mutual Life Insurance Co., of Boston, established a Life Conservation Service, which has been issuing some attractive and valuable health literature prepared by its director of health education, Raymond S. Patterson, Ph.D., from whom copies may be secured.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Laws and Ordinances

FORT COLLINS, COL.—Ordinance, May 31, 1929.
AURORA, ILL.—Ordinance, June 24, 1929.
PEKIN, ILL.—Ordinance, September 4, 1929.
INDIANA.—Statute, 1929, ch. 14.
VINCENNES, IND.—Ordinance, March 29, 1929.
ALLENDALE, N. J.—Ordinance, February 14, 1929.
ALLENHURST, N. J.—Ordinance, March 4, 1929.
CHATHAM, N. J.—Ordinance, June 3, 1929.
DOVER, N. J.—Ordinance, August 12, 1929.
RED BANK, N. J.—Ordinance, June 3, 1929.
RUMSON, N. J.—Ordinance, August 22, 1929.
NORTH HEMPSTEAD, N. Y.—Ordinance, May 28, 1929.
PEEKSKILL, N. Y.—Ordinance, July 23, 1929.
WAUWATOSA, WIS.—Ordinance, July 16, 1929.

Two Cases with Relation to Garage as Nuisance

ALABAMA.—*Block v. McCown*, 123 So. 213.—A business lawful in its nature, such as that of a public filling station and repair shop, not a nuisance per se in one locality, may become such when conducted and maintained in another which is residential in character; and a demurrer to a bill seeking to enjoin it should be overruled.

One seeking such an injunction was not required to wait until business was being conducted, since in so waiting he might be estopped and the injury complained of become irreparable.

PENNSYLVANIA.—*Ladner v. Siegel*, 146 Atl. 710.—Appellees contemplated the erection of a garage of one story with basement underneath, for 429 cars. Surrounding this construction units of apartment houses were to be erected. The neighborhood was residential in character, apartments predominating.

In the opinion of the court:

Regardless of the *persons* who use the garage, the use of a building for the storage, service or repair of a number of automobiles is not a nuisance per se in a section devoted to business purposes; but does become a nuisance per se in a residential section.

But in a third-class residential section—i.e., a section where apartment houses of all kinds, hotels, lodging houses, clubhouses, public schools, telephone exchanges, truck gardens and greenhouses may be found—a garage properly built to, under or around an apartment house is not a nuisance per se.

"Home Rule" Zoning—Certiorari

ILLINOIS.—*Park Ridge Fuel and Material Co. v. City of Park Ridge*, 167 N. E. 119.—In Illinois no rights exist and no powers are conferred as respects subject of zoning, except by statute.

An intervener who has failed to pursue his remedy by certiorari given him by statute, cannot have a decision reviewed in equity suit to enjoin city from interfering with complainant's construction of buildings and structures.

Non-conforming Use

LOUISIANA.—*State ex rel. Dema Realty Co. v. Jacoby*, 123 So. 314.—An ordinance prohibiting the establishment of business in a residential area and requiring the removal within one year of business already established therein is valid.

Street Access

MASSACHUSETTS.—*Centebar v. Selectment of Watertown*, 167 N. E. 303.—The rights of the public in the highway, including sidewalks in front of plaintiff's premises, include the right to lay therein a cable of a fire-alarm signal station and to erect and maintain therein cable boxes incidental thereto; even although the public right in the highway is an easement only, the erection of a fire-alarm system not being an additional servitude. The court finds that the cable box will not materially interfere with the plaintiff's access to his property. The easement of access pertains to every part of plaintiff's land, but does not include the right to cross the sidewalk to and from the roadway at all places.

Right of Way—Opening to Sky

MASSACHUSETTS.—*Sargeant v. Traverse Building Trust*, 167 N. E. 233.—A reservation of a "common right of way in the three-foot passageway upon the rear of said premises" does not, under the circumstances outlined in this case, establish the right of the dominant owners to have the passageway kept open to the sky.

Board of Appeals Reopening Proceedings

NEW YORK.—*Matter of Ficaro v. Walsh*, 226 App. Div. 441.—The Board has authority to reopen proceedings to reconsider its prior determination, and to vary the use district regulations on the ground of unnecessary hardships and practical difficulties where new facts appear, such as the condition of the property in the immediate vicinity having been changed by the consent of the former objecting owners.

Board of Appeals—Two Cases with Regard to Jurisdiction

NEW YORK.—*Matter of Stein (Flanagan, etc.), Supreme Court, Kings County, reported in N. Y. Law Journal, August* 31, 1929.—This is an application for a mandamus to compel the Superintendent of Buildings of Brooklyn to permit alterations for a change of occupancy from a store to a wet wash laundry, denied by him because of a resolution of the Board of Standards and Appeals adopted March 16, 1920. There had been no appeal to the Board of Standards and Appeals. The petitioner seeks to justify his failure to appeal on the ground that the Superintendent's refusal was based upon a ruling of the Board which was invalid in that by said ruling the Board attempted to amend the zoning resolution, which power rested only with the Board of Estimate (in this matter the legislative body of the city). It is not to be presumed that if the resolution was erroneous the Board would now adhere to it. A mandamus order should not be granted upon the theory that an appeal to the Board would result in an unreasonable adherence to its former view. This

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is a matter that may be argued upon that appeal.

The petitioner further seeks to justify his failure to appeal on the ground that the Board had already ruled adversely in the facts, in revoking a certificate of occupancy of the premises for a laundry because the petitioner had not complied with certain conditions as to equipment upon which a certificate had been granted him. Upon certiorari it was held that because of his non-compliance with the conditions he could not be heard to question the right or power of the Board in respect to the resolution of 1920. Nothing in that proceeding prevents a petitioner from now raising that question before the Board. Motion denied.

NEW YORK.—*Matter of Orphan Asylum Society of the City of Brooklyn v. Walsh, Supreme Court, Kings County, reported in N. Y. Law Journal, August* 31, 1929.—Motion to dismiss a certiorari to review a decision of the Board of Standards and Appeals permitting by variation the erection of a garage for more than five cars within a business district. The application to dismiss is based primarily upon the ground that the certiorari was not applied for within the thirty days fixed by Section 719-a of the City Charter. The power to order a variation is incident to the power "the board shall have in passing upon appeals" under that section, and the thirty days' limitation clearly applies. Motion granted.

Buildings Under Construction

WISCONSIN.—*Rosenberg v. Village of Whitefish Bay,* 225 N. W. 838.—A zoning ordinance, silent with regard to buildings under construction at the time of the passage of the ordinance, will not be construed as forbidding their completion, especially where plans have been made and expenses incurred, thus vesting substantial rights.

Billboards

"Zoning Facts," compiled for the Board of City Planning Commissioners of Los Angeles by Huber Earl Smutz, Zoning Engineer, in its number of August 1, 1929 (No. 7), deals briefly and practically with the purposes and results of zoning in the control of billboards.

Control of Urban Development

An article in the Journal of Land and Public Utility Economics for August, 1929, by Coleman Woodbury, entitled "Some Suggested Changes in the Control of Urban Development," discusses at some length zoning and subdivision ordinances and their possible improvement.

Municipal Regulation of Automobile Service and Filling Stations to Eliminate Possible Fire Hazards

AMENDMENTS dealing with the regulation of automobile gasoline service or filling stations have been adopted tentatively by the National Fire Protection Association as part of its suggested ordinance regulating the use, handling, storage and sale of flammable liquids.

The ordinance was adopted in its present form in 1926 and is offered in a new pamphlet, a reprint of the Association's 1926 edition, following in general form and arrangement the previous edition dated December, 1921. Except for a few editorial changes in the text, the present edition is substantially the same as that of eight years ago, except for appendices dealing with the automobile filling stations and construction of rooms, cabinets and outside houses for the storage of flammable liquids, which constitute 1929 additions.

Those amendments dealing with the regulation of the service or filling stations are subject to change before final adoption, but have been included in the new edition of the pamphlet for the information of those interested in that subject. Readers having any suggestions for changes are invited to communicate with the executive office of the National Fire Protection Association so that their ideas may be considered while there is time.

Sections 81 and 82 of the amendment entitled "Automobile Gasoline Service or Filling Stations" merit the attention of every progressive municipality and are offered here in full. (These requirements are not intended to apply, however, to gasoline service stations and filling stations located in garages.)

81. GASOLINE GAGING OR VENDING DEVICES

(a) All gasoline gaging or vending devices shall be of approved type and substantially secured to concrete or masonry foundations suitably located and of proper design and dimensions to normally prevent any portion of motor vehicle colliding with the device.

(b) Systems wherein continuous pressure is maintained on the gasoline storage tank in connection with gasoline gaging or vending devices shall be prohibited.

(c) The use of above-ground gasoline storage tanks in connection with gasoline gaging or vending devices shall be prohibited.

(d) Devices which discharge by gravity shall be so designed that it is impossible to retain in the gaging compartment materially more than 10 gallons of liquid, and so that it is not possible to lock the device without draining the gaging compartment.

82. STATION BUILDINGS, EQUIPMENT, OPERATION AND CARE

(a) Provision shall be made by grading driveway, raising door sills, or some equally effective means to prevent gasoline spills from flowing into the interior of station buildings.

(b) Electric motors and other spark-emitting devices, when provided, shall be installed in a well ventilated room where no flammable liquids are stored or handled unless such devices are approved by the chief of the fire department for use in explosive atmospheres.

(c) Drainage from crank cases shall be kept in suitable closed metal containers.

(d) "No Smoking" signs and "Stop Motor While Filling" signs shall be prominently posted to be readily visible at points where gasoline is handled.

Copies of the new edition of the pamphlet containing the suggested ordinances and amendments may be obtained from the National Fire Protection Association at 15 cents per copy.

Safeguarding the Storage of Films

SPECIAL hazards to life and property involved in the storage and handling of nitrocellulose photographic, motion-picture and X-ray films were explained recently by C. R. Brown, Assistant Physicist of the Bureau of Standards, Department of Commerce, in a paper read at the University of Illinois. The address was one of several on the program of the fifth short course in Fire Prevention, Control and Extinguishment, held at that institution.

These films are very flammable and can be decomposed and ignited at relatively low temperatures, it was pointed out. The gases given off are very poisonous and also more or less explosive when mixed with air. For this reason care should be taken in storage, which should be made in proper structures.

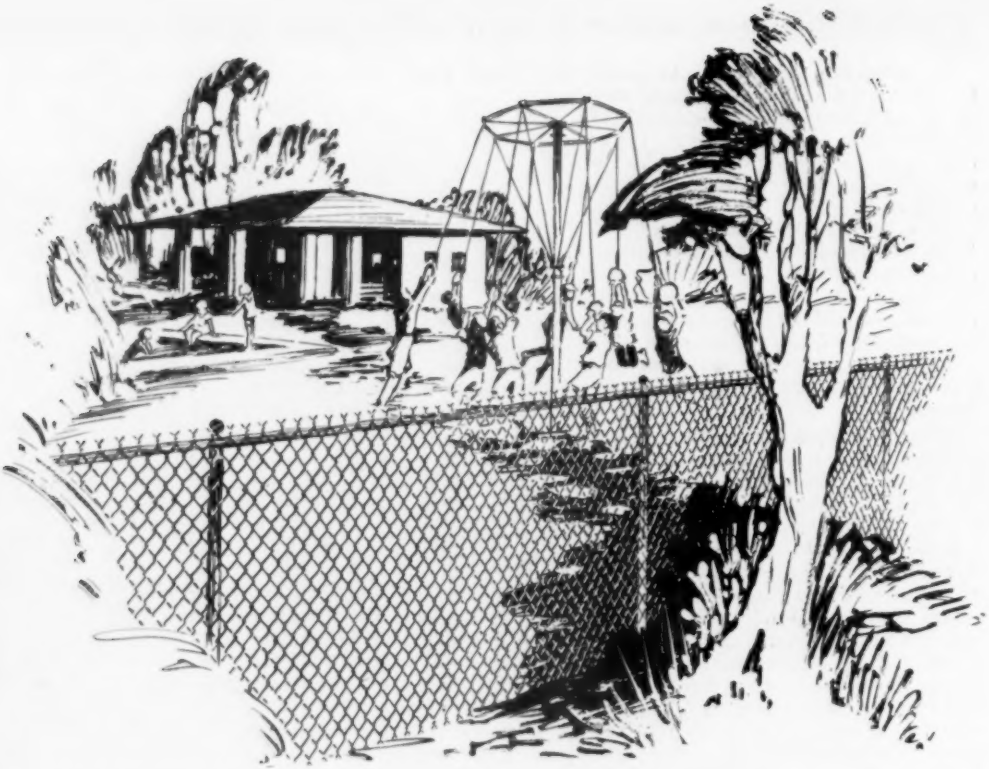
For safe storage, such films in any quantity should be kept either in cabinets or vaults. These should be fire-resistive, protected by automatic sprinklers and vented to the outside air, Mr. Brown asserted. Vaults should preferably be located on the roof or in a separate building. Special requirements are to be met in lighting and heating, while smoking and the carrying of open flames into the film storage should be prohibited. The handling of the film should be done by a trained personnel which understands the hazards involved, according to the speaker.

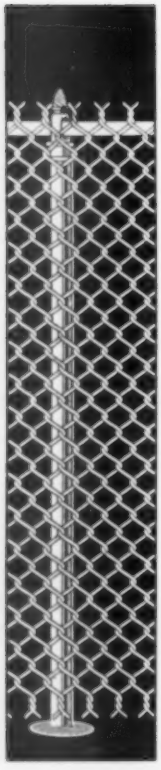
The use of cellulose acetate, or "safety" film, is recommended, as this film is no more hazardous in storage than ordinary paper, Mr. Brown states. The requirements for storage of safety film, therefore, do not have to be nearly as rigid as those for nitrocellulose film.

America's First Graduate School of City Planning Opens at Harvard University

To the graduate professional schools of Architecture and Landscape Architecture at Harvard University, a School of City Planning has been added this year through aid of the Rockefeller Foundation. Its function is not only to train men to be professional city planners, but to give a sound conception of city planning to men who are going to be architects, landscape architects, engineers, or leaders in various public endeavors, so that they may be efficient cooperators in the comprehensive planning field. The carrying-on of research and the publication of information directly useful in city and regional planning will be among the principal activities of the school.

City planning lectures or study courses have been offered for several years in a number of universities, but this new Graduate School of City Planning is the first of its kind in the United States.





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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, *Attorney at Law*

City Exonerated from Liability for Fire Communicated from Refuse Dump.—Because defendant city received no compensation or other private benefit from the collection of refuse and dumping of the same on private land with the consent of the owner, the Massachusetts Supreme Judicial Court decided in the case of Saperstein vs. City of Everett, 163 N. E. 757, that the city was not liable for injury to nearby property to which fire was communicated by burning papers blown from the dump.

Permit to Lay Gas Pipes in Street to Supply Single Consumer Did Not Violate Rights of Company Holding Non-Exclusive Gas Franchise.—The city of Fort Smith, Ark., granted a franchise to the Twin City Pipe Line Co. to furnish gas to consumers in that city, but it was not an exclusive franchise. The Citizens Pipe Line Co. was later granted permission by the city to construct and operate a pipe line to furnish gas to a glass plant, which was owned by a corporation that owned a majority of the stock of that pipe line company.

Under these circumstances, the Arkansas Supreme Court decided (Citizens Pipe Line Co. vs. Twin City Pipe Line Co., 10 S. W. 2d, 493) that the holder of the general franchise could not enjoin the holder of the special permit from using the streets to supply the glass plant with gas. The Court held that the holder of the general franchise "was without right to question the power of the city to pass this ordinance granting the permission to appellant company to furnish gas to this particular consumer, since it had no exclusive franchise for supplying gas to the consumers of the city of Fort Smith."

Permit for Filling Station Issued Upon Proper Application Held Not Revocable. — Surrounding circumstances did not justify revocation of a permit for the erection of a filling station, held the Texas Court of Civil Appeals in the case of Gulf Refining Co. vs. City of Dallas, 10 S. W. 2d, 151. The Court said:

"The permit provided for the erection of a building, and appellant, as the owner of the lots on which the same was to be erected, incurred expenses in the construction of the building contemplated to be erected under said permit, and it would be inequitable and unjust to permit the appelee city to revoke the permit without cause, viz., the concealment of material facts or material misrepresentations, or the commission of acts of fraud of any kind in obtaining the issuance of the same, this because the permit was issued by the proper authorities for the erection of the filling station by appellant, and appellant thereafter made contracts and incurred liabilities thereon, acting in good faith. Appellant thereby acquired a property right in reference to which it was entitled to protection, in the absence of any one of the causes above enumerated which would authorize the permit to be revoked, or in the absence of public necessity for the revocation of the same."

The Court decided that it was immaterial that the oil company had not secured a permit specifically permitting it to construct approaches across the abutting sidewalk, saying:

"The city could not lawfully occupy the attitude of having granted the right to build the filling station without the corresponding right arising therefrom to use the filling station, which use could not be enjoyed without the right of ingress and egress to the filling station over the adjoining sidewalks. It would be but trifling with the rights of the property owner. The right of ingress and egress to one's property is a vested right, and cannot be destroyed without due process of law, and the granting of the permit to construct the filling station carried with it the implied authority to enter and leave the property for the purpose of carrying on the business for which the improvement thereon was to be constructed. Of course, the right of ingress and egress is one within the power of the city to reasonably regulate, and we do not mean to say that this right could be exercised without complying with reasonable regulations for the protection of pedestrians and others having the right to use the sidewalks and the street adjoining thereto."

Constitution Forbade City to Subscribe to Mutual Insurance Fund, but Policy Was Not Void as to Injured Employee.—Under provisions of the Texas Constitution, it is improper for cities to subscribe to a mutual insurance fund, holds the Texas Commission of Appeals in an opinion approved by the Texas Supreme Court (Southern Casualty Co. vs. Morgan, 12 S. W. 2d, 200). The constitutional provision, which is similar to that in force in many states, forbids cities to become stockholders in any association or corporation, or to lend their credit thereto. But irregularity in this regard did not vitiate a city employee's right to hold the insurer liable:

"The insurance company having voluntarily accepted the premium from the city and also voluntarily agreed to carry the risk, and the employee having accepted the employment from the city under such an arrangement, the insurance company should not now be heard to plead, as a defense, the lack of authority on the part of the city to make the contract, after the employee has been injured."

Election Promises of Municipal Nominees Held Not to Violate Corrupt Practices Act.—The case of Adair vs. McElreath, 145 S. E. 841, involved the eligibility of a mayor and aldermen elect of Cartersville, Ga., in view of the fact that during their campaign they advocated sale of city's light and gas plants to a power company, with promises to the people of future and indefinite benefits to result from such sale. The Georgia Supreme Court held that the proceeding was properly dismissed, because no violation of the corrupt practices provisions of the charter were alleged.

Under the charter of the city, any candidate for nomination or election to the office of alderman in that city, who pays, gives, or offers to pay or give, directly or indirectly, money or anything of value, or who shall knowingly suffer any person to do so, for the purpose of obtaining the vote or influence of any elector, or obtaining his vote or influence against an opposing candidate, is disqualified thereby to fill the office of mayor or commissioner of the city. Under the same charter it is "unlawful for any candidate for office or any officer of said city, directly or indirectly, to give or promise any person or persons any office, position, employment, benefit, or anything of value for the purpose of influencing or obtaining the political support, aid or vote of any person or persons."

Concerning these provisions of the charter, the Court said:

"It has been generally held that offers made and statements published by candidates for public office, that they will serve, if elected, at less salaries or for smaller fees than those fixed by law, are in violation of the Corrupt Practice Acts, such as those contained in the above provisions of the charter of the city of Cartersville. Some of these decisions hold that such offers render the election void. Others hold that votes secured by such offers should not be counted in favor of the candidate making them. . . .

"The underlying principle of these decisions is that, when a candidate gives an elector personally money or property to secure his vote, it is direct bribery or a direct attempt to bribe the elector by a pecuniary consideration, and that, when candidates offer to discharge the duties of elective offices which they seek for less than the salaries fixed by law, and which must be paid by taxation, they offer to reduce pro tanto the amount of taxes which each individual taxpayer must pay, and are thus indirectly making the same offer of pecuniary gain to the voter as if they were offering him money directly. . . .

"There is a wide difference between such a gift or promise and those many promises made by candidates of future

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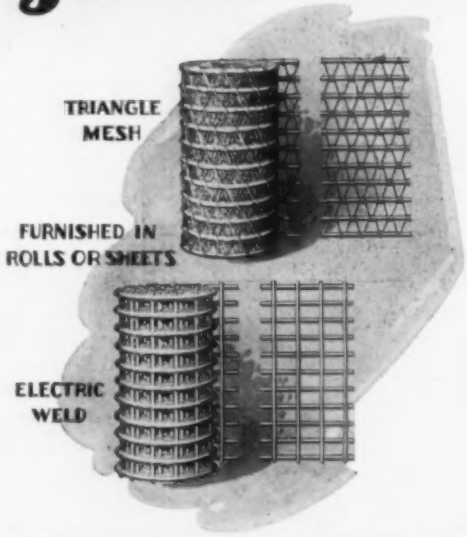

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*Report of Sub-Committee on Sub-grades and Pavement Bases by C. A. Hogentogler, Chairman, Senior Engineer, U. S. Bureau of Public Roads. American Road Builders Convention January 15, 1929.

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and indefinite benefits which will come to the public as a whole from a course of official conduct which the candidate outlines while running for office. The latter are made in the public interest, and are consistent with the personal fitness of the candidate for the office sought. The former savors of bribery, involving a personal gift or promise from candidate to voter in order to secure his influence, aid, or vote, and in which the test of fitness is ignored."

Whether Street or Road Has Become Public Held to Be Tested by Unrestricted Use Which Is Not Affected by Slight Variations in Lines of Travel.—The case of Needham vs. Village of Winthrop Harbor, 163 N. E. 471, decided by the Illinois Supreme Court, involved the right of a village to occupy a strip of ground as a street through long-continued use. Upholding the major claims of the village, the Court said, in passing:

"The test in determining whether a road has become a highway by prescription is whether or not the public generally had the free and unrestricted right in common to use the road. Where it is shown to have been openly and notoriously used as an open highway in common by all of the people for the statutory period it will be considered a public highway. . . . The test is not the number of persons actually using the road, but whether or not the public generally had the free and unrestricted right to use it. . . . The public use for the statutory period, unexplained, will raise the presumption that it was used adversely. . . . Where such use is shown, the burden is on the one denying the existence of a public highway to show that the use was under some license or indulgence inconsistent with the claim of the right of the public. . . . It is not necessary, in order to establish a public highway by user, that all vehicles that traverse it shall follow exactly the same route. If the user is over substantially the same strip, changes in the wheel ruts, necessitated by conditions of the road or occasioned by meeting other vehicles, do not constitute a change of the location of the road."

An Abutter Upon a Park Entitled to Injunction Against Establishment Therein of Recreational Center for Which Fees Are Charged.—Land was dedicated as a city park and was so used exclusively for many years, but the city later established a swimming pool, bathhouse and concession pavilion on the grounds, fencing the pool, etc., and charging admission.

In the case of Carstens vs. City of Wood River, 163 N. E. 816, the Illinois Supreme Court decided that plaintiff, an owner of nearby property, was entitled to injunction against this diversion of part of the park area from the purpose to which it had been dedicated. The Court remarked:

"It is well settled that, where public grounds are dedicated to a municipality for use as a park, either by statute or by the common law, they must be preserved for the use of the public for the purposes of the donation. . . .

"The diversion of a large part of the park to the uses of a recreation center, for which fees are charged, and the prohibition of the free public use thereof, or any use at all of the ground a greater portion of the year, we think are not park purposes."

Following a Minority View, Illinois Court Holds That City Is Liable for Negligence in Cleaning Streets.—A Chicago street cleaner set fire to a small pile of trash in a gutter and left it unattended. The wind blew the flames across a sidewalk and caught a small child's dress, resulting in fatal burns. Holding that the city was liable, the Illinois Supreme Court reached the following state conclusion in the case of Roumbos vs. City of Chicago, 163 N. E. 361:

"In this state the care of the streets and sidewalks, their lighting and maintenance, have always been held to be the corporate functions of the municipality, and the municipality has been held liable for the negligence of its employees in the performance of those functions which has resulted in injury to others. There is no difference in kind between these functions and the cleaning of the streets. All are provided for by the same statute in the same terms, and the same rule of liability should apply to all.

"It is argued that the great weight of authority in the decisions of the courts of final jurisdiction in other states is contrary to the conclusion we have reached. We have not overlooked or failed to consider those decisions. Those denying the liability of the city are more numerous than those to the contrary, but in our judgment the view which we have expressed is sustained not only by our own decisions but by the better reason and is more just in its operation than the other view."

City Held Not to Have Power to Lease Its Airport to a Private Party.—Shortly after acquiring a 140-acre airport, the city of Coffeyville, Kan., attempted to lease it to the owner of a Kansas City flying school at $50 per month, plus $5 for each hangar that the city might construct in excess of four to be constructed by it under the lease. The lease contained provisions designed to insure active use of the field for training and air transportation purposes. But in the case of State vs. City of Coffeyville, 274 Pac. 258, the Kansas Supreme Court held that it was beyond the power of the city to enter into such a lease. The arrangement could not be justified on the ground of impracticability for the city to undertake operation of the airport nor upon the ground that the terms of the lease might be fair. The Court's conclusions were thus stated:

"There is no substantial analogy between this case and that of Bailey v. City of Topeka, 97 Kan. 327, 154 P. 1014, L. R. A. 1916D, 491, where an exclusive concession in a small part of a large city park was granted, nor that of State ex rel. v. Dodge City, 123 Kan. 316, 255 P. 387, where an inconsiderable part of a public park was set apart for the quite consistent purpose of a touring camp, with the usual facilities pertaining thereto. . . .

"Our attention is called to the comprehensive language of R. S. 12—101, which declares that the cities of this state shall have power, among other matters, to make such orders concerning the real property of the municipality 'as may be deemed conclusive to the interests of the city, and to provide for the improvement, regulation and government of the same,' and also—

"'Fourth. To make all contracts and do all other acts in relation to the property and concerns of the city necessary to the exercise of its corporate or administrative powers. . . .

"'Sixth. To exercise such other and further powers as may be conferred by law.'

"This court, however, feels impelled to hold that neither the statute just quoted nor any other can by fair intendment be interpreted to confer upon the city of Coffeyville the corporate power to sublet its municipal airport, nor to confer upon a private individual, as lessee of the city, the exclusive privilege of managing the municipal airport for his private profit; and the fact that the lease contemplates that the lessee's charges must be reasonable, and that the aviation services which he undertakes to furnish must be open to all aviators alike, will not excuse the city's exercise of a corporate power for which there is no statutory authority."

Classification of Vehicles for License Tax Purposes Upheld—A license tax ordinance of defendant city imposed a wheelage tax upon vehicles, dividing horse-drawn vehicles into six classes and motor vehicles into nine, including motorcycles, pleasure automobiles, delivery cars of one ton or less, delivery cars of more than one ton, trailers of one ton or less, trailers of more than one ton, automobiles used in carrying passengers for hire, motor hearses, funeral limousines, tractors with rubber tires, and those not so equipped. Various rates were charged for the different classes. Upholding this ordinance, the Illinois Supreme Court said in the case of Melton vs. City of Paris, 164 N. E. 218:

"Even though the municipality, under authority of the statute, may have had the power to make other classifications and distinctions between vehicles of the same class as to carrying and motive power other than those provided by the ordinance, yet the failure so to do did not render the ordinance unreasonable or unconstitutional, provided the classification and the rates charged were reasonable, were authorized by the statute, and all persons within the class were treated alike. . . . A court will not hold an ordinance void and unreasonable where there is room for a fair difference of opinion upon the question, even though the correctness of the legislative judgment may be doubtful and the court may regard the ordinance as not the best which might be adopted for the purpose."

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MUNICIPAL AND CIVIC PUBLICATIONS

Prices when mentioned do not include postage unless so stated. Pamphlets, reports and free publications should be ordered direct from addresses given.

Federal Limitations Upon Municipal Ordinance Making Power.—By Harvey Walker, Political Science Department, Ohio State University. Ohio State University Press, Columbus, Ohio. 1929. 207 pp. $3.00.

In order to provide a more condensed and accessible presentation of this subject than existing treatises on the law of municipal corporation furnish, Mr. Walker, who has had extensive contact with municipal affairs, including the drafting of ordinances, especially in the Middle West, has prepared this classified collection and discussion of United States Supreme Court decisions affecting the making of municipal ordinances. These are studied from the legal viewpoint, rather than social or administrative ones, in order that those concerned with ordinance drafting may be aided in making them legally valid, from the Federal standpoint. After a discussion of the place of municipal ordinances in our legal system, the relations of various clauses of the Constitution to ordinances are set forth—particularly the commerce and contract clauses and the Fourteenth Amendment. The book should be of particular interest to city attorneys and city managers.

The Santa Barbara Court House.—A beautiful brochure of 24 pages, quarto, pasteboard bound, has been issued by the Board of Supervisors of Santa Barbara, Calif., to describe and portray the $1,500,000 Court House dedicated on August 14, 1929. The building is in the Spanish Mission style. "No court house like it has been seen before. The columns, domes, cold marbles, and other familiar features of the conventional public building are missing. In their places are brilliant plastered walls, romantic towers, and balconies, imposing arches, and intriguing details. These all fit distinctive Santa Barbara as they would fit no other city." The architect, William Mooser, was assisted by his son, William Mooser, Jr. Work of the Santa Barbara sculptor, Ettore Cadorin, enriches the exterior. Following an initial bond issue, some years ago, the building has been financed on the pay-as-you-go policy. (Apply to the Board.)

Nebraska State Capitol—A Special Descriptive Folder, Lincoln, Nebraska, Facts and Figures.—Two publications of the Lincoln Chamber of Commerce. The former is a reprint of articles from the *American Magazine of Art* on the art and architecture of the Capitol, printed on the reverse side of a layout of the Capitol's mural decorations, which are presented in quarter-sheet poster form, six times folded. The latter is a 16-page, folder-form record of the present-day development of a progressive and modern city of an estimated population of 80,000. (Apply to the Chamber of Commerce.)

New Trends in Home Design.—By James S. Taylor, Division of Building and Housing, Department of Commerce, Washington, D. C. A paper delivered before the Homebuilders' and Subdividers' Division, National Association of Real Estate Boards, in Boston, June 26. It includes authoritative discussions of present-day minimum standards of small house building and other important matters based upon recent Department of Commerce studies made in 38 cities. 25 pp. (Apply to the author.)

Your Share in $15,000,000.—An 8-page booklet descriptive of the services rendered by the Russell Sage Foundation, particularly its publication service, through which large numbers of social progress studies are made available on a below-cost basis. (Apply to the Foundation, 130 E. 22nd. St., New York.)

Community Recreation.—By James Claude Elson, M.D., Professor of Physical Education, University of Wisconsin. The Century Co., New York. 1929. 278 pp. $2.25.

Drawing upon a broad experience as director of physical education and recreation and as a demonstrator of community recreation methods, Dr. Elson has brought together in his present contribution to the Social Workers' Library Series such information, facts, and suggestions as will, in his judgment, give greatest aid to organizers and leaders of recreation programs. Fundamental principles underlying modern organized play, and the historic backgrounds of the play movement are discussed. Traditional folk-rites are offered as incentive and as foundation for the planning of holiday celebrations. Programs are suggested for all seasons and for many occasions; and separate chapters are devoted to dramatic readings and community musical organization.

The Effects of Playgrounds on Land Values.—By Jacob W. Feldman, B.S. *Playground and Recreation*, issue of September, 1929, presents a 9-page article containing an account of procedure used and conclusions reached by Mr. Feldman in a study of the above subject made in Brooklyn, N. Y., and Orange, N. J., and including both property adjacent to and bordering on public playgrounds. The complete study was submitted in partial fulfillment of conditions leading to the degree of Master of Arts in the School of Education in New York University. No easily-statable conclusions of general application are derivable from the study, but both procedure and conclusions as set forth offer valuable aids to further local researches in this field. 25c. (Apply to Playground and Recreation Association of America, 315 Fourth Ave., New York.)

A Plan for the City of Vancouver, B. C.—In the letter of transmission prefacing Vancouver's new plan, Harland Bartholomew, the city planning engineer, says that "Vancouver is the most important Pacific port of a great country," saying also that few cities possess such a combination of natural resources, a splendid harbor, favorable terrain, equitable climate and natural beauty, and adding that circumstances of such character call for a plan of substantial scale. He has accordingly developed such a plan for the city and contiguous territory. This is published in a 310-page report, quarto size, with maps, halftones, and tables, bound in stiff cardboard. Major Streets, Transit, and Transportation, claim the great part of the report, each being developed on regional scale with much detail. Public Recreation, Zoning, and Civic Art are treated in separate sections, and a substantial final section is devoted to "A Program for Execution of the Plan." $2. (Apply to the Secretary, Vancouver Town Planning Commission, 626 W. Pender St., Vancouver, B. C.)

1000 and One: The Blue Book of Non-Theatrical Films.—The sixth edition of this directory published by The Educational Screen, Inc., 5 S. Wabash Ave., Chicago, Ill., is considerably larger than former issues, and its sponsors "confidently offer it as better than any preceding." The material, as formerly, is classified by subject. Brief comments follow each title, with descriptions of availability and the name of the distributor, also the size and physical character of the film. Free films are listed and films available through University Extension Service are given attention, though they are not, by reason of their great number, listed by titles. 145 pp. 75c. (Apply to publisher.)

Chicago: A More Intimate View of Urban Politics.—By Charles Edward Merriam, Professor of Political Science in the University of Chicago. The Macmillan Company, New York. 1929. 305 pp. $3.50.

Professor Merriam looks at things as they are, in this study of Chicago's political standards and practices. For a review of the book and excerpts which reveal its analytical quality, see pages 137 and 138 of this issue. A book of remedies may appear later from the same participant and observer.

Forestry: A Study of Its Origin, Application, and Significance in the United States.—By Arthur Bernard Recknagel, B.A., M.F., Professor of Forest Management and Utilization, Cornell University; and Samuel Newton Spring, B.A., M.F., Professor of Silviculture, Cornell University. Alfred A. Knopf, New York. 1929. 300 pp. Illustrated. $3.00.

The authors have designed this work as an introductory textbook, and, no less, as a volume of information on forestry for the general public. It tells the story of American forests from the earliest times, pictures the rise of exploitation and waste, and traces the evolution of forestry methods in timber production. Our present forestry policy is shown to have resulted from combined historical, social and economic forces, the full effects of which are just now beginning to be felt. The case method is used throughout the last half of the work to illustrate the essentials of present-day forestry practice as applied to federal, state, and private areas. The work closes with a chapter on the real status of forestry from the economic point of view. An appendix contains references, facts, and tables which directly supplement the text.

Beton als Gestalter (Concrete as Form-Creator).—By Julius Vischer and Ludwig Hilberseimer. Julius Hoffman, Stuttgart, Germany. 1928. 121 pp. 16 marks.

This is the fifth volume of the Baubücher (Building Books) series, devoted to new forms and methods of architecture and building construction. It deals with the distinctive new forms that are being developed as a consequence of the use of reinforced concrete, for industrial buildings, residences, halls, towers, bridges, dams, etc. Different types of construction are described; and 264 photographs and drawings are shown, many of them very striking views of outstanding examples, under construction or completed, of concrete structures in many countries.

Raising the Standards of Homes.—Pamphlet publications issued by Better Homes in America for use by Better Homes Week campaign committees and others interested in improving living conditions in their communities include: "Guidebook for Better Homes Campaigns," 48 pp., 10; "Why America Will Have Better Homes" and "Home Improvement," by Blanche Halbert, 7 pp. and 8 pp.; and "Good Housekeeping for Families of Modest Means," and "Homes Equipped for Children," by Dr. James Ford, 6 pp. and 14 pp., on request. (Apply to Better Homes in America, 1653 Pennsylvania Ave., Washington, D. C.)

Statistical Report of Infant Mortality, 1928.—The annual compilation of infant mortality rates presented by the American Child Health Association covers 729 cities of the United States. The death-rate of 68.3 shows an increase over the 1927 figure of 64.9, but stands, nevertheless, as the second lowest infant death-rate ever recorded for the cities of the country. Infant mortality rates by cities, with tabulations of cities having highest and lowest rates in their respective population groups, and other statistical information, are all shown in this 28-page quarto report. (Apply to the Association, 370 Seventh Ave., New York.

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Are you doing double work on your skin and penetration patching? Do the men in your gangs carry hot stuff in pouring pots from melting kettle to patch? That is *waste!*

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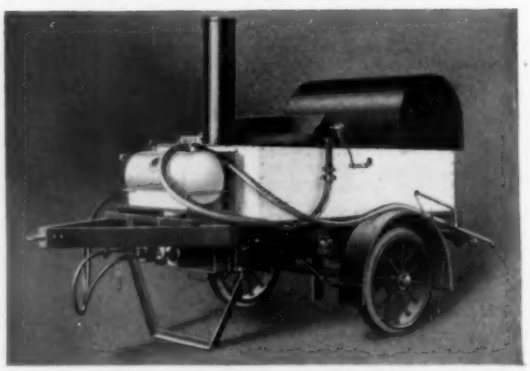

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North West Surrey Regional Planning Scheme: Report Prepared for the North West Surrey Joint Town Planning Committee.—By Adams, Thompson & Fry, Town Planning Consultants, 121, Victoria Street, Westminster, S.W. 8, London, England. 1928. 51 quarto pp. Photographs, folding map in pocket, diagrams, tables.

The regional plan set forth in this report covers the combined areas of the Urban District Councils of Woking, Chertsey, Frimley, Egham, Weybridge, and Windlesham, and the Chertsey Rural District Council. The region is an undulating countryside, with heaths and fragrant pine woods which at certain points set off the calm beauty of the Thames. The soil not being adapted to agriculture, and the scenery full of charm, the region is popular for residential purposes. It includes the beautiful Virginia Water, one of the loveliest of the few lakes of Surrey. The usual divisions of the subject are followed in the report. Most interesting to the distant reader is the section on the preservation of "amenity," a term which should certainly become ours also, since our word "agreeableness" so feebly echoes the full meaning of the ideal implied in the English expression.

International Federation for Housing and Town Planning: Papers, Part 1.—The advance publication of summaries of the papers presented at the conference meeting in Rome, Italy, September 12-22, is a 518-page volume with the text in English, French, German, and Italian. It includes the following: "Historical Development of the Plan of Rome, and Its Significance for Modern Town Planners"; "Financing Working Class and Middle Class Housing with Special Reference to Methods of Attracting New Finance"; "Planning Apartment Housing Schemes in Large Towns"; "Replacing Old and Historic Towns to Meet Modern Conditions"; "Methods of Planning for the Expansion of Towns with Special Reference to Old and Historic Towns"; and "The Development of Milan." Americans represented by papers are: Alexander M. Bing, President, City Housing Corporation, New York; Charles O'Connor Hennessy, President, Franklin Society, New York; Lawrence Veiller, Secretary-Director, National Housing Association, New York; and Aubrey Tealdi, Professor of Landscape Design, University of Michigan. Complete papers and discussions will follow as in former years. (Apply to the Federation, 25 Bedford Row, W.C. 1., London, England.)

Street Replanning in Downtown Districts.—By Harland Bartholomew, City Plan Engineer, St. Louis, Mo. In a paper delivered before the National Conference on City Planning, July, 1929, the author outlines the principal street-replanning projects in large American cities, and shows how these have been undertaken—often at tremendous cost—as the means necessary to introducing logical traffic movement in the business district. Suggesting a comprehensive plan where costly projects are to be undertaken, he discusses the essentials of such a plan for a business district, the proper size for a business district, and methods of financing street-replanning projects in such districts. This paper, Bulletin No. 6 of the National Conference on City Planning (1929), is copiously illustrated with maps and charts showing conditions in the cities discussed. 26 pp. (Apply to the Conference, 105 East 22nd St., New York.)

Controlling the Appearance of New and Widened Streets.—By Harry B. Brainerd, Architect and City Planner. This 2-page article was originally published in the *East Side Chamber News* (New York City) as the third of a series of research studies of community problems, and under the title "Why Grow by Accident?" The reprint is subtitled "People of Discrimination Dress Themselves with Care. Why Not Dress Your Streets with Equal Care?" The author outlines a suggested plan to be used by civic bodies for securing control of public and private architecture in juxtaposition to streets. This has special reference to Houston, Essex, Chrystie, Forsyth, and Allen Streets, on the lower East Side, New York City, but is of general application, as is the organization chart presented. (Apply to the author, 681 Fifth Ave., New York.)

The Thirty-sixth Annual Convention, International Association of Chiefs of Police.—The 187-page published proceedings of the I.A.C.P. Conference, 1929, contains papers on a large number of subjects all of which are the direct concern of public safety officials. Among suggestive titles are: "Shall the State Control the Regulation of Motor Vehicles and Safety Campaigns?", by John L. Sullivan, Chief of Police, Pittsfield, Mass.; "The Problem of the Transient Criminal and How to Deal With It," by A. J. Roberts, Chief of Police, Jacksonville, Fla.; and "The Relationship Between the Police Department and the Prosecuting Attorney," by Hon. John A. Boykin, Solicitor General of the Atlanta, Ga., Circuit. Crime records, the radio in police work, police training schools, and the narcotic evil, are among other subjects covered. (Apply to George Black, Secretary, Wilmington, Del.)

Annual Report, Buffalo, N. Y., Police Department, 1928.—This report is a 36-page publication, quarto size, with information organized and presented according to recommendations of the Uniform Crime Records Committee of the International Association of Chiefs of Police. In addition to showing in text and tables the Department's routine and special accomplishments during the year, and the general status of police work, it contains recommendations looking to increased police efficiency. (Apply to James W. Higgins, Police Commissioner, Buffalo, N. Y.)

The Conduct of Community Centers.—As the conception of public recreation steadily broadens to include more activities for adults, the community center increases in potential importance. School boards in almost all of the states are empowered by law to establish and maintain such centers in school buildings, while general laws in most of the other states may be interpreted to cover such provisions; and beside the school buildings, other buildings are available for this use in many places. The Playground and Recreation Association of America has therefore drawn upon the experience of many cities for the material presented in this book, which is subtitled "A Practical Guide for Recreation Workers" and which contains four sections: "Organization and Administration of Community Centers"; "The Program and Its Organization"; "Facilities and Equipment"; and "Suggestions for the Conduct of Community Centers." Every aspect of the matter is discussed, from ways of getting the cordial backing of the school superintendent to the use of attendance report cards. 52 pp. 25c. (Apply to the Association, 315 Fourth Ave., New York.)

The Improvement of Civic Instruction.—By Arnold W. Brown, Ph.D. Recent changes in subject matter as well as in teaching-methods have placed new responsibilities upon instructors in civics and have created a corresponding need for new professional books. Dr. Brown has prepared the present work for civics teachers of junior and senior high schools. The first part covers the history, aims, and content of the subject. The second is devoted to a consideration of ways in which teachers may improve instruction methods. Considerable attention has been given to determining the proper limits of subject matter (a point on which there has been a lack of agreement among authors) and to show proper points of emphasis. 102 pp.; paper bound. $1.75. (Apply to Standard Printing Co., Ypsilanti, Mich.)

Housing in Philadelphia.—The Annual Report of the Philadelphia Housing Association, 1928, issued under the above title and uniform with former reports, contains the paper, "What the Rest of the Country Can Learn From Philadelphia," presented by Bernard J. Newman, Managing Director, at the National Housing Conference, 1929; also the Managing Director's account of the International Housing and Town Planning Congress held in Paris in July, 1929, with some impressions of housing conditions in European cities having practical value in connection with housing betterment at home. The local situation is reviewed and Association activities reported upon in detail. 44 pp. (Apply to the Association, 311 S. Juniper St.)

Proceedings, International Association of Electrical Inspectors, Western Section.—The 24th annual meeting of this organization, held in Denver, September 10-12, 1928, is reported in a booklet of 301 pages, which contains various committee reports, and papers and addresses on the administration of electrical ordinances, the inspection and labeling of electric railway cars, the paralleling of electric refrigerators, motor wiring tables, the electrical field engineer's relation to the National Electrical Code, and the electrical inspector. Considerable space is devoted to discussion of the changes in the 1928 Electrical Code. $3.00. (Apply to the Secretary, 175 W. Jackson Blvd., Chicago, Ill.)

Chlorinated Copperas and Ferric Chloride as Coagulants.—A paper by L. H. Enslow, Research Engineer, The Chlorine Institute, with discussion by H. G. Menke, Assistant Sanitary Engineer, Alabama State Board of Health, and A. Clinton Decker, Sanitary Engineer, Tennessee Coal, Iron & Railroad Co. It was presented at the First Virginia Conference on Water Purification and Sewage Treatment, at Richmond, April 26, 1929, and is printed as Technical Publication No. 105 of Wallace & Tiernan Co., Inc., Newark, N. J. (Apply to the company.)

Statistical Records of Detroit.—A 13-page pamphlet containing eleven tables of various physical, operating and financial statistics of Detroit and its government, assembled by the Detroit Bureau of Governmental Research. July, 1929. (Apply to the Bureau.)

Assessed Values, Bonded Debt, and Tax Levies, Massachusetts Cities.—This is a 10-page multigraphed report issued by the Taxpayers Association of Fall River, Inc., based upon information furnished by city officials and brought together with the view of showing, in summary, statistical data bearing upon the finances of the cities of the state. The comparative bonded debt and tax burden of each city is shown, but "such data as total taxes levied are of doubtful value" without consideration of other factors, and some of these are discussed in a paragraph of conclusions. (Apply to H. G. Fishack, Director.)

General Survey of Schenectady.—The Chamber of Commerce of Schenectady, N. Y., in this 31-page economic and industrial record gives for the residents an analysis of present conditions "so that we may look our situation squarely in the face, see what we have and how best we may use this material for Schenectady's advantage; and for the prospective resident an account in words and figures of the city's advantages and resources." (Apply to the Chamber.)

The Financial History of Baltimore, 1900-1926.—By Leonard Owens Rea, Ph.D., Professor of Business Administration, Catawba College. No. 3, Series XLVII, Johns Hopkins University Studies in Historical and Political Science. 1929. 142 pp. An account of the finances of Baltimore from 1729 to 1897 has already been written by Professor Jacob H. Hollander. The present work is "an attempt to bring this up to date in a formal and concise manner," presented under the four heads of administration, expenditures, revenues, and indebtedness. $1.45. (Apply to Johns Hopkins Press, Baltimore, Md.)

Building a Better Binghamton.—The annual report of the Department of Public Works of Binghamton, N. Y., for the year 1928 is in the form of an attractive printed pamphlet of 71 pages containing many illustrations of the work done, as well as tables and descriptive material. (Apply to the Department.)

Other Reports Received

LANCASTER, PA.—Water and Sewer Reports (with state permits authorizing recommended improvements as reported upon). March 18, 1929. 112 pp.

ROCHESTER, N. Y.—Annual Report, City Comptroller, 1928. 96 pp.

SALT LAKE CITY, UTAH.—Annual Report, Engineering Department, 1928. 104 pp.

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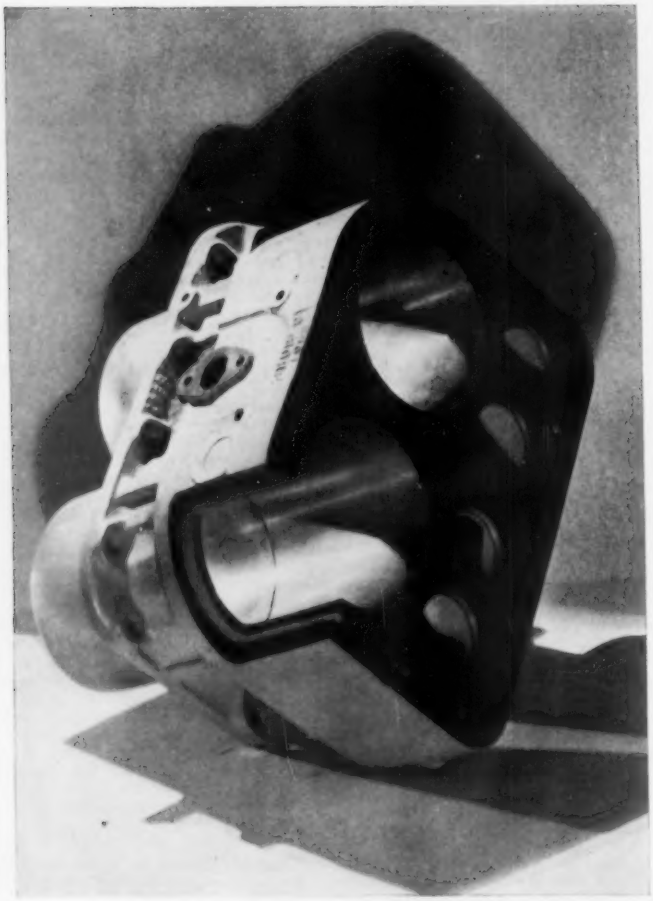
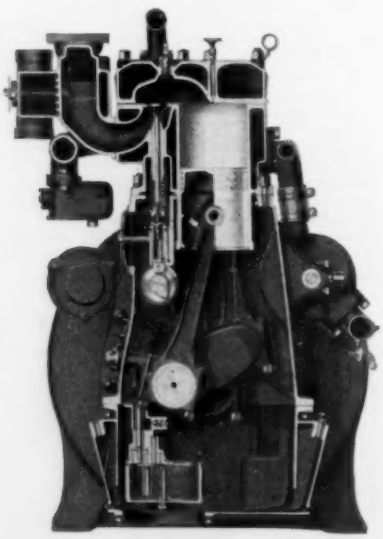
NON-ROCKING CYLINDERS



THE truncated cylinder mounting in Waukesha Super-duty Industrial Engines is made possible by the deep, rigid "girder" type crankcase. The outer crankcase wall comes half-way up the cylinder barrel. The cylinder's supporting flange is at the base of the water space... nearly opposite the point of greatest side thrust. Cylinder rocking, leaky oil joints and imperfect alignments are eliminated. ¶ Many other exclusive features are explained in Bulletin 581. Write *Industrial Equipment Division, Waukesha Motor Company, Waukesha, Wisconsin. Offices: New York, 8 West 40th Street; San Francisco, 7 Front Street.*

WAUKESHA ENGINES



Cross Section of 4-Cylinder Super-Duty Waukesha Engine.

973

CONVENTIONS—WHEN AND WHERE

SEPTEMBER 28-OCTOBER 4.—ATLANTIC CITY, N. J.
American Electric Railway Association. Convention. General Secretary, J. W. Welsh, 292 Madison Avenue, New York.

SEPTEMBER 29-OCTOBER 4.—SPRINGFIELD AND CHICAGO, ILL.
American Civic Association, Inc. Third traveling annual meeting. Executive Secretary, Miss Harlean James, 901-07 Union Trust Building, Washington, D. C.

SEPTEMBER 30-OCTOBER 5.—MINNEAPOLIS, MINN.
American Public Health Association. Annual meeting. Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

SEPTEMBER 30-OCTOBER 4.—CHICAGO, ILL.
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

OCTOBER 2-4.—UNIONTOWN, PA.
Pennsylvania State Association of County Commissioners. Annual convention. Secretary, L. C. Norris, Clearfield, Pa.

OCTOBER 7-11.—OAKLAND, CALIF.
League of California Municipalities. Convention. Executive Secretary, William J. Locke, 707 Chancery Building, San Francisco, Calif.

OCTOBER 8-9.—SWAMPSCOTT, MASS.
Massachusetts Police Association. Annual convention. Secretary, John H. Shaughnessy, West Newton, Mass.

OCTOBER 9-10.—ATLANTA, GA.
Southeastern Building Officials' Conference. Secretary, Dan A. Hulick, City Engineer, Greenville, S. C.

OCTOBER 9-10.—MILWAUKEE, WIS.
Wisconsin Chiefs of Police Association. Annual meeting. Secretary, R. H. McCarty, Police Department, Kaukauna, Wis.

OCTOBER 9-11.—BOSTON, MASS.
American Society of Civil Engineers. Fall meetmeeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

City Planning Division of the Society, October 10. Secretary, Harold M. Lewis, 130 East 32nd Street, New York.

OCTOBER 10-11.—VALLEY CITY, N. DAK.
League of North Dakota Municipalities. Annual meeting. Executive Secretary, Myron H. Atkinson, Bismark, N. Dak.

OCTOBER 14-16.—JACKSONVILLE, FLA.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 100 North LaSalle Street, Chicago, Ill.

OCTOBER 14-18.—PHILADELPHIA, PA.
American Society for Municipal Improvements. Annual convention. Secretary, C. W. S. Sammelman, 315 Commercial Building, St. Louis, Mo.

OCTOBER 14, WEEK OF.—QUEBEC, P. Q.
Municipal Securities Committee of the Investment Bankers Association of America. Annual convention. Chairman, Henry T. Ferriss, Care of First National Company, St. Louis, Mo.

OCTOBER 14-19.—LOUISVILLE, KY.
Playground and Recreation Association of America. Annual convention. Secretary, Howard S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 14-17.—TULSA, OKLA.
Southwest Water Works Association. Annual convention. Secretary, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 15-16.—ALEXANDRIA, VA.
League of Virginia Municipalities. Annual convention. Executive Secretary, Morton L. Wallerstein, 408 Travelers Building, Richmond, Va.

OCTOBER 15-17.—BATHURST, N. B.
Union of New Brunswick Municipalities. Annual convention. Honorary Secretary-Treasurer, John B. McNair, Fredericton, N. B.

OCTOBER 17-20.—AMES, IOWA.
American Country Life Association. Conference. Executive Secretary, Benson Y. Landis, 105 East 22nd Street, New York.

OCTOBER 17-18.—MONTREAL, QUE.
Canadian Tax Conference of the Citizens' Research Institute of Canada. Director, Horace L. Brittain, 21 King Street, Toronto, Ont.

OCTOBER 17-18.—SPRINGFIELD, ILL.
Illinois Municipal League. Annual convention. Executive Secretary, A. D. McLarty, Urbana, Ill.

OCTOBER 20-23.—MILWAUKEE, WIS.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, S. V. Saxby, Chamber of Commerce, Duluth, Minn.

OCTOBER 22-25.—BIRMINGHAM, ALA.
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

OCTOBER 22-24.—AMES, IOWA.
Iowa Sewage Treatment Conference. Secretary-Treasurer, Lindon J. Murphy, Municipal Engineer, Iowa State College, Ames, Iowa.

OCTOBER 22-24.—TOLEDO, OHIO.
Ohio State Conference on City Planning. Secretary, Gerald S. Gimre, City Hall, Youngstown, Ohio.

OCTOBER 23-26.—DEL MONTE, CALIF.
American Water Works Association—California Section. Annual convention. Secretary, William W. Hurlbut, 207 South Broadway, Los Angeles, Calif.

OCTOBER 25.—JACKSON, MISS.
Mississippi State Board of Development. Convention. Secretary, L. J. Folse, Lamar Life Building, Jackson, Miss.

OCTOBER 25-29.—SALEM, ORE.
League of Oregon Cities. Annual meeting. Secretary, A. L. Barbur, City Hall, Portland, Ore.

OCTOBER 28-NOVEMBER 1.—WEST BADEN, IND.
Asphalt Association. Convention. General Manager, J. E. Pennybacker, 441 Lexington Avenue, New York.

OCTOBER 28, WEEK OF.—SOUTH BEND, IND.
Association of Asphalt Paving Technologists. Annual meeting. Secretary-Treasurer, C. A. Mullen, Montreal, Que.

OCTOBER 28-30.—ARKANAS CITY, KANS.
League of Kansas Municipalities. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 4-6.—HIGH POINT, N. C.
American Water Works Association—North Carolina Section. Annual meeting. Secretary-Treasurer, H. G. Baity, Associate Professor, School of Engineering, University of North Carolina, Chapel Hill, N. C.

NOVEMBER 6-8.—SIOUX FALLS, S. DAK.
American Water Works Association—Missouri Valley Section (formerly Iowa Section). Annual meeting. Secretary, Earl L. Waterman, Room 104 N, Engineering Building, University of Iowa, Iowa City, Iowa.

NOVEMBER 12-15.—SAN ANTONIO, TEXAS.
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1222 National Press Building, Washington, D. C.

NOVEMBER 12-14.—CHICAGO, ILL.
Governmental Research Association. Annual meeting. Secretary-Treasurer, Russell Forbes, 261 Broadway, New York.

NOVEMBER 12-14.—CHICAGO, ILL.
National Association of Civic Secretaries, Annual meeting. Secretary, Miss Harlean James, 905-07 Union Trust Building, Washington, D. C.

NOVEMBER 12-14.—CHICAGO, ILL.
National Municipal League. Annual convention. Secretary, Russell Forbes, 261 Broadway, New York.

NOVEMBER 13-16.—BILOXI, MISS.
American Institute of Steel Construction, Inc. Annual convention. Executive Director, Charles F. Abbott, 285 Madison Avenue, New York.

NOVEMBER 13-15.—CHICAGO, ILL.
American Municipal Association. Annual meeting. Executive Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 14.—NEW YORK.
National Committee for Mental Hygiene, Inc. Annual meeting. Secretary, Clifford W. Beers, 370 Seventh Avenue, New York.

NOVEMBER 14-15.—OSHAWA, ONT.
Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting. Secretary-Treasurer, T. Marshall, Royal Bank Building, Toronto, Ont.

NOVEMBER 18-21.—MIAMI, FLA.
American Association of Zoological Parks and Aquariums. Annual meeting. Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

NOVEMBER 18-21.—MIAMI, FLA.
American Institute of Park Executives and American Park Society. Annual convention. Executive Secretary, William H. Walker, South Bend, Ind.

NOVEMBER 20-22.—EDMONTON, ALTA.
Alberta Association of Municipal Districts. Annual convention. Secretary, E. Pinchbeck, Spruce Grove, Alta.

NOVEMBER 20-23.—FORT WORTH, TEXAS.
International City Managers' Association. Annual convention. Executive Secretary, Clarence E. Ridley, 923 East 60th Street, Chicago, Ill.

NOVEMBER 20-23.—MUSCLE SHOALS, ALA.
The Public Ownership League of America. Annual conference. Secretary, Carl D. Thompson, 127 North Dearborn Street, Chicago, Ill.

NOVEMBER 26-27.—CUSHING, OKLA., AND NOVEMBER 28.—STILLWATER, OKLA.
Oklahoma Municipal League. Annual convention. Executive Secretary, J. T. Salter, University of Oklahoma, Norman, Okla.

DECEMBER 2-6.—NEW YORK.
American Society of Mechanical Engineers. Annual meeting. Secretary, Calvin W. Rice, 29 West 39th Street, New York.

DECEMBER 3-5.—EDINBURG, TEXAS.
Texas Association of Sanitarians. Seventh Texas Sanitarians' Short School. Secretary, E. G. Eggert, Texas State Board of Health, Austin, Texas.

DECEMBER 4-6.—CHICAGO, ILL.
National Paving Brick Manufacturers Association. Annual meeting. Secretary, Q. A. Campbell, 1245 National Press Building, Washington, D. C.

DECEMBER 10-11.—WASHINGTON, D. C.
National Rivers and Harbors Congress. Secretary-Treasurer, S. A. Thompson, 824 Colorado Building, Washington, D. C.

DECEMBER 12-13.—WASHINGTON, D. C.
Highway Research Board, National Research Council. Annual meeting. Director, Roy W. Crum, B and 21st Streets, Washington, D. C.

DECEMBER 27-30.—WASHINGTON, D. C.
National Community Center Association. Annual meeting. Secretary, LeRoy E. Bowman, 403 Fayerweather Hall, Columbia University, New York.

JANUARY 11-18.—ATLANTIC CITY, N. J.
American Road Builders' Association. Annual convention and Road Show. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.

JANUARY 27-31.—NEW YORK.
American Institute of Electrical Engineers. Annual winter convention. National Secretary, F. L. Hutchinson, 33 West 39th Street, New York.

JANUARY 27-30.—ABILENE, TEXAS.
Texas Water Works Short School. Annual session. Address: V. M. Ehlers, Secretary, Southwest Water Works Association—Texas Section, Austin, Texas.

GREATER ECONOMY!
per mile, per trip, per pound hauled

Dodge Trucks on the job are an assurance of *greater economy*—per mile, per trip and per pound of material hauled. Those who operate them economize in two ways: They save time. They save money.

The power, the speed, the dependability, the safety and the handling ease of these long-lived workers insure a saving of time. Add that to the economy in dollars and cents effected through lowered cost of operation and upkeep. The result: money saved, greater economy.

For proof of the money-saving ability of Dodge Trucks, inspect one—with your needs in mind. Drive it. Consult owners. Then consider the low price of the type that fits your needs. Buy it complete with body—from your local Dodge Brothers Dealer.

Count on it to cut your hauling costs, save time and money.

PRICES

½-TON—109" wheelbase (4-cyl.)	$ 525
¾-TON—124" wheelbase (4-cyl.)	675
¾-TON—124" wheelbase (6-cyl.)	775
1-TON—133" wheelbase (4-cyl.)	745
1-TON—133" wheelbase (6-cyl.)	845
1-TON—140" wheelbase (6-cyl.) Heavy Duty	1065
1½-TON—150" wheelbase (6-cyl.)	1345
1½-TON—165" wheelbase (6-cyl.)	1415
2-TON—150" wheelbase (6-cyl.)	1515
2-TON—165" wheelbase (6-cyl.)	1585
3-TON—135" wheelbase (6-cyl.)	1745
3-TON—165" wheelbase (6-cyl.)	1775
3-TON—185" wheelbase (6-cyl.)	1845

Chassis f. o. b. Detroit

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SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

When you write for that catalog, kindly mention THE AMERICAN CITY.

NEWS AND ILLUSTRATIONS

Items *of* Interest *to* City, Town *and* County Officials, *and* Others Concerned *with the* Economical Construction *and* Efficient Operation *of* Public Improvement Undertakings

Features of a 4-Cylinder Vertical Diesel Engine

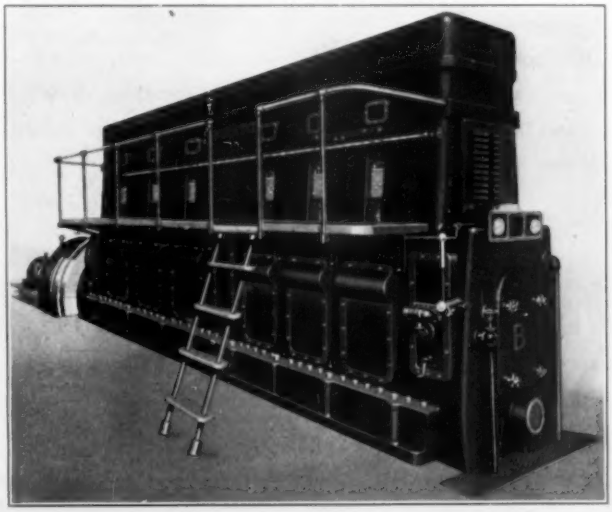
Diesel engines are being used more and more in municipal work for the operation of pumps and electric lighting and power equipment. The Buckeye diesel engine made by the Buckeye Machine Co., Lima, Ohio, is simple in construction and is of the 4-cylinder type, making it admirably adapted for municipal service.

The principle of Buckeye ignition is the burning of fuel by the heat of compression and these engines start instantly even under extremely low temperatures, on the low grades of commercial fuel oil, without the aid of preheating, electric or incandescent plugs or pumps. The oil is injected under pressure directly into the cylinder combustion space. The combustion space is of simple design, free from pre-combustion chambers or restricted openings, thereby using all the heat generated for power purposes and requiring less water for heat dissipation and cooling.

Air is admitted into the cylinder by a new cylinder-head feature. This new principle of admitting the air assures a very thorough mixture of oil for proper combustion. A turbulence is created by the air rushing in on the two outside tangents of the valve opening. The air is agitated still more when the fuel is injected, causing complete combustion. The engine is easily started by opening the throttle valve and admitting compressed air from the storage tank. A pressure of from 120 to 200 pounds is all that is needed to start the engine rotating. With the admission of oil, the combustion takes place and acceleration to full speed is only a matter of seconds, according to the manufacturers' report.

In addition to the air turbulence feature, there are six other exclusive features in the Buckeye 4-cylinder diesel engine. These are full pressure lubrication throughout, cylinder heads which may be removed without disturbing the manifolds or piping, an inbuilt air filter, an inbuilt lubricating oil filter, an inbuilt fuel oil filter and the full enclosure of all parts.

The low-gravity fuel oil which is usually used for the Buckeye diesel, besides being cheaper, contains more heat units per pound than the lighter oil and, as fuel consumption varies in direct proportion to the heat units of the oil, a low-gravity oil is consumed more slowly than a light oil with a low heat content. A fuel consumption of 0.40 pounds of fuel oil on full load with 0.41 pounds for three-quarter load is obtained under everyday average conditions.

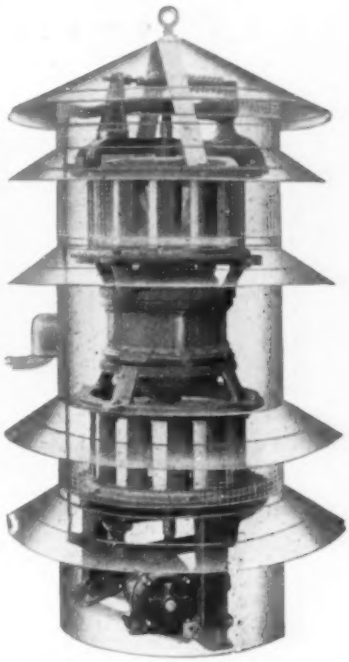


A 6-CYLINDER 400-HORSEPOWER BUCKEYE DIESEL ENGINE

A New Variable Fire-Alarm Siren

Strength and simplicity are combined in the new coding fire-alarm siren which has been developed by the Federal Electric Co., 8700 South State Street, Chicago, Ill. A specially designed motor is provided with rugged cast iron rings to support the stators or stationary rings of the noise-producing part of the siren. Inside these stators revolve cast aluminum rotors which are accurately balanced to eliminate vibration.

The vertical design of this new Fedelcode siren permits sound to be projected evenly to all points of the compass. At the same time the tone is deflected downward by awning-shaped hoods. These hoods also provide maximum protection against the weather. It would require an almost horizontal rain to reach the rotor parts. Quarter-inch mesh screen as a part of the housing prevents the entry of birds or foreign matter.



PHANTOM VIEW OF THE NEW FEDERAL SIREN WITH CODING MECHANISM INSTALLED

The general alarm siren when connected to proper control apparatus produces a rising and falling tone of great penetrating quality, indicating that there is a fire, without giving coded location. By the addition of four simple parts, constituting the coding mechanism, the general alarm machine is converted into one which can give code or box numbers.

The coding mechanism consists of an upper valve, lower valve, coding motor and adjustable tie-rod. These are easily attached to the general alarm machine by bolting into holes drilled in the siren before it is shipped from the factory. When operating as a code siren, it is only necessary to pull a standard fire box on the street, which operates a special code control panel, starting the siren automatically and then transmitting the code signal to the valves through the coding motor.

The siren runs continuously while coding and then is shut off automatically. The coding is accomplished by opening

12,000 MILES ...*"No Expense!"*

PICTURED are three General Motors Trucks in the service of W. R. DU BOIS & SON, Road Contractors, of Baraboo, Wisconsin, which have rolled up more than 12,000 miles with no mtaintenance or repair expense whatever, according to the owner, who adds that the trucks cover 275 to 300 miles per day with four yards of gravel to the load.

* * *

The impressive records which General Motors Trucks are rolling up result from wise use of tremendous advantages: 27 years of actual truck experience, plus the engineering resources and facilities of the General Motors Research Laboratories and Proving Grounds; vast buying power that commands highest quality in all parts and materials; the most modern commercial vehicle plant in the world today—and the largest, too—bar none!

To investigate this complete line of modern vehicles is the quickest, surest way to find out how *you* can obtain a bigger dividend on every dollar you invest in haulage equipment. Write, phone or call.

General Motors Truck branches, distributors and dealers are located in 1,500 principal cities and towns.

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GENERAL MOTORS TRUCK COMPANY, Pontiac, Michigan

General Motors Trucks, Yellow Cabs and Coaches

(Time payments financed through Y. M. C. A. *plan, at lowest available rates.)*

ALWAYS INVESTIGATE WHAT GENERAL MOTORS HAS BEFORE YOU BUY

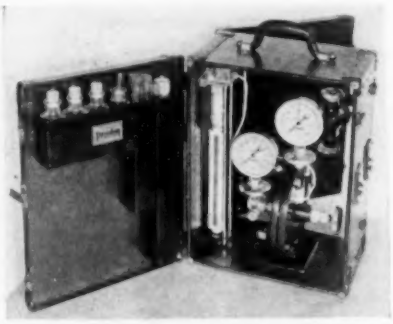
Mention THE AMERICAN CITY—it helps.

and closing the valves which seal and unseal the air inlets to the rotors. When there is no air there can be no noise. This method provides fast coding and gives sharp, distinct signals of a rising and falling or "wild cat" tone. If desired the general alarm machine may be purchased first and then later the coding valves, coding panel and fire boxes may be added.

A New Type of Portable Chlorinator

A portable chlorinator housed in a tough fiber case constructed similar to a piece of hand luggage, has been announced by the Paradon Manufacturing Co., Arlington, N. J. When closed this chlorinator looks like a piece of baggage and would readily pass as such. The equipment consists of a standard dry-feed Paradon chlorinator fully equipped. The unit is adaptable to continuous regular chlorinating service, as well as occasional emergency use.

A silver chlorine shut-off valve is provided, making it possible to keep the apparatus under chlorine pressure when not in use, thus preventing access of moisture



THE NEW FIBER-CASED EMERGENCY CHLORINATING UNIT

and other foreign material and allowing long periods of disuse without attendant deterioration of the unit.

No water-supply is necessary for the operation of the unit. The apparatus can be supplied in any range of capacities from 1 pound of chlorine per 24 hours to 300 pounds. A chlorine-testing outfit, spare parts, connection to main and all other necessary accessories are contained in the carrying case of the apparatus. A similar fiber container is provided for two 12-pound cylinders of chlorine.

The appointment of Roy E. King as assistant to L. K. Cecil, 214 Atco Building, Tulsa, Okla., sales representatives for the Paradon Manufacturing Co., in the states of Arkansas and Oklahoma, has recently been announced.

New Chicago Pump Representative

The Chicago Pump Co., 2336 Wolfram Street, Chicago, Ill., has announced that in the future D. R. Munro, 201 Lumbermans Bldg., Portland, Ore., will have charge of that territory.

THE NEW MUELLER METER YOKE

A New Meter Yoke

A new meter yoke, known as G-10630, has recently been brought out by the Mueller Co., Decatur, Ill. This yoke is said to combine all the good features of previous Mueller yokes with many new ideas. The body is cast in one piece of high quality grey iron. The yoke drops vertically onto the risers, entailing no complicated adjustment, an adjustable ell allowing tightening of the meter in the yoke without danger of springing the pipes. The ell also acts as a stop when screwed back to its limit, preventing drain from the house. The stop is of the pressure closing type with spring-loaded key. The key can be operated only by the special Mueller wrench and is bored in alignment with holes in the protecting shield, allowing a seal wire to be inserted, sealing the stop either open or closed. A testing cap on the ell provides an easy method of checking the operation after installation.

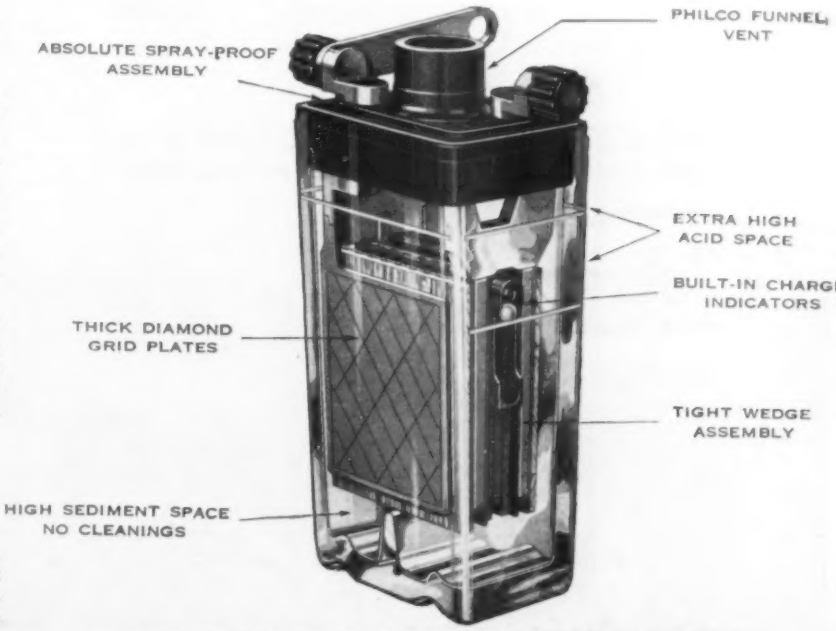
A Spray-proof Battery for Fire-Alarm Operation

Remarkable progress has been made since 1921 in the development of small battery units. The pressure of the vast radio market has forced battery manufacturers to concentrate on the development of small, compact, spray-proof glass-jar batteries. Other users of batteries have benefited by this development. The Philadelphia Storage Battery Co., Ontario and C Streets, Philadelphia, Pa., in its Type 52 UX-1 and 92 UX-1, has developed a storage battery of spray-proof construction with built-in charge indicators of special service in the fire-alarm field.

A special molded cover insures a seal between the cover and the jar wall. A patented post seal prevents acid spray or creepage. The scientifically baffled funnel vent forces the condensed spray to redrain into the cell and it is not necessary to remove the vent for the addition of distilled water. Both the terminals and the inter-cell connectors are heavy, with a spray-proof assembly to insure freedom from terminal corrosion. The built-in indicators eliminate the need of an hydrometer and indicate accurately both the acid level and the state of the charge at all times.

The Philco diamond grid plates afford the greatest capacity per square inch of plate surface. The tightly wedged assembly utilizes all of the available space within the jar for capacity and it is impossible for the plates to buckle. The retainer holds the active material firmly in place and enables the cell to retain its high capacity and voltage characteristics throughout a long life.

The batteries are shipped dry-charged, with the acid in separate bottles, so that the battery is 60 per cent charged after the acid is added. The bolted connections make the battery unit interchangeable. There are no sediment cleanings, as ample sediment space is provided. The high acid space makes water additions necessary only three or four times a year in normal operation. The heavy molded jars reduce jar breakage to a minmum, the thick diamond grid plates are hard and porous and correspondingly long-lived and Douglas fir quarter-sawed hardwood separations eliminate the possibility of internal short circuits. The Philco retainers are thin sheets of finely slotted hard rubber providing double insulation and adding 41 per cent to the life of the battery.



THE NEW PHILCO STORAGE BATTERY FOR FIRE-ALARM SERVICE

"Makes the Dirt Fly!"

WHETHER it's smoothing out the chuckholes on a stretch of roadway — grading down some rough ground with a bulldozer — or just plain hauling with dump wagon or scraper train — *"the dirt flies"* when a Cletrac is on the job.

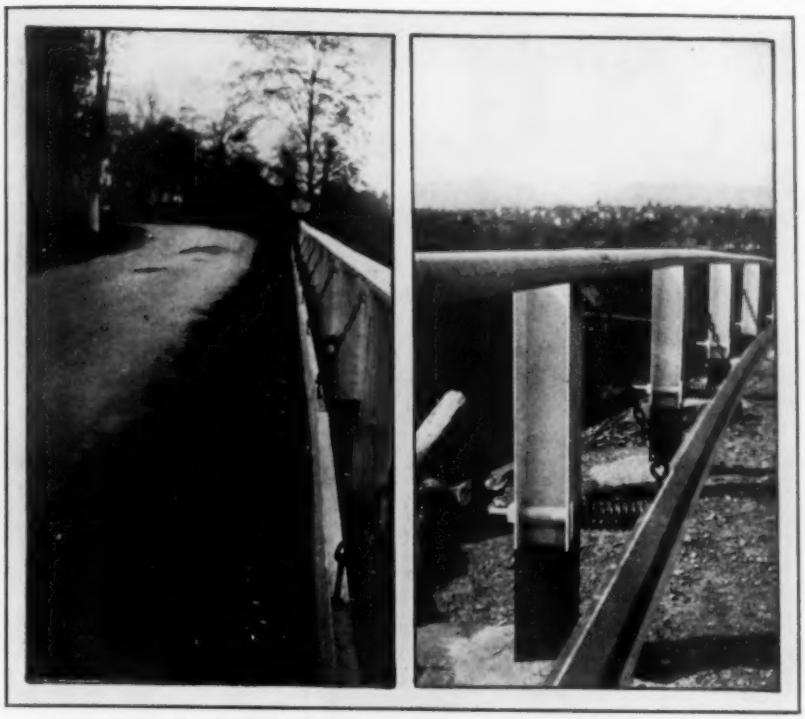
Power is the big factor — and when Cletrac combines it with unyielding traction and the high gear speed of a perfect transmission system, there is no question about results.

Cletrac Crawler Tractors are the standard power units for every phase of road work and general contracting service. For speed, economy and all 'round satisfaction . . . . SELECT A CLETRAC!

Cletrac Crawler Tractors are built in a complete line covering the entire range of large, medium and small power requirements. Four models — 20 h. p. — 30 h. p. — 40 h. p. — 100 h. p.

THE CLEVELAND TRACTOR CO.
19326 Euclid Avenue Cleveland, Ohio

Write for the big story of Cletrac performance in all types of heavy duty, industrial work.



THE STANDCO HIGHWAY GUARD, MOUNTED ON STEEL AND WOOD POSTS

A New Protective Highway Guard-Rail

An all-steel highway guard which can be mounted on steel, concrete or wood posts has been developed by the Standard Iron Works, 926-928 Penn Ave., Scranton, Pa.

The StandCo highway guard is composed of a 10 x ¼-inch steel guard plate held at axle height along the edge of the highway. This guard plate is reinforced with an angle bar secured to the inner face. The guard plate is held in position by a horizontal 1-inch bolt which goes through the pipe sleeve in the supporting post and is kept from sagging by a tension chain which is adjustable.

Springs are mounted between the angle bar and a plate at the post on each bolt to provide a cushioning action when a tire or steel hub comes in contact with the guard plate.

By the use of this type of highway guard, the danger of automobile accidents is reduced, automobiles are prevented from leaving the road, many lives are saved and much property damage overcome. By guiding the wheel along the road, the guard plate helps to prevent the driver from losing control of the car and, in addition, the guard plate more clearly marks the road, as it is a painted strip on the fence line.

New Worthington Manager

E. J. Schwanhausser, for the past two years Assistant Manager of the Harrison, N. J., works of the Worthington Pump and Machinery Corporation, has been appointed Manager of that company's Buffalo works. Mr. Schwanhausser has served the Worthington corporation in various capacities since 1912.

Steel Poles for Municipal Installations

Since Weltrus steel poles were first offered, about a year ago, numerous refinements in design, detail and manufacture have been made and four new types have been added to afford a complete range of sizes to meet every condition of service. These poles, made by the Truscon Steel Co., Youngstown, Ohio, are now available at a cost directly comparable to that of first-class wood construction.

The poles are composed of two high tensile strength channel chord members cold rolled from copper alloy steel. The chords are connected by a continuous lattice web member of copper alloy rounds which forms a one-piece Warren truss. All connections are autogenously welded, electrically, by automatic machinery which accurately regulates the time, current and pressure uniformity of each weld. By utilizing chords of different gage in top and bottom sections to meet the varying stresses in the chords, a greater degree of economy in design is attained.

A characteristic feature of the Weltrus pole is the absence of taper, the poles being of equal width from top to bottom. Taper increases deflection and induces excessive stresses in pole members and also complicates the attachment of pole fittings.

For use in cities with street lighting and trolley fittings, protection sleeves or dog guards consisting of two No. 10 gage plates held in place by two interlocking joints and a cast iron ornamental collar, are used in setting the poles. The sleeve should be filled with concrete sloped at the top to form a watershed. The 24-inch sleeve, extending 18 inches above the concrete line, is ordinarily satisfactory and affords ample protection against ground line corrosion. Longer sleeves may be used to provide against impact from trucks or cars.

Pomona to Increase Field

A report from the Pomona Pump Co., Pomona, Calif., states that the company's increase in business for 1929 is expected to be about 60 per cent over 1928, and the directors feel that the increase for 1930 will be about the same. Application has been made to the Corporation Commissioner of the State of California to increase the capital stock of the company from $1,000,000 to $2,000,000. The plant is operating on three 8-hour shifts per day with business exceeding $2,000,000. Proceeds from the stock issue are to be used for the construction of additional factory buildings, pump-building machinery and international expansion of business.

Hamilton Maxwell Moves

Hamilton Maxwell, Inc., aerial photographers and surveyors, have moved their offices from 551 Fifth Avenue, New York, to their Connecticut plant. Their new mailing address is Springdale Post Office, Stamford, Conn.

Incinerator Corporation Moves Offices

The Nye Odorless Incinerator Corporation have announced the removal of their offices on September 20 to Albany, Ga., where they have recently completed their own office building. All mail should be addressed to the company at Post Office Box 566, Albany, Ga.

WELTRUS STEEL POLE WITH STREET-LIGHTING FIXTURE

Portland Cement Concrete Pavement Laid by the California State Highway Department, 1927, Between Ventura and Santa Barbara. John F. Knapp, Contractor.

Concrete roads encourage free traffic movement

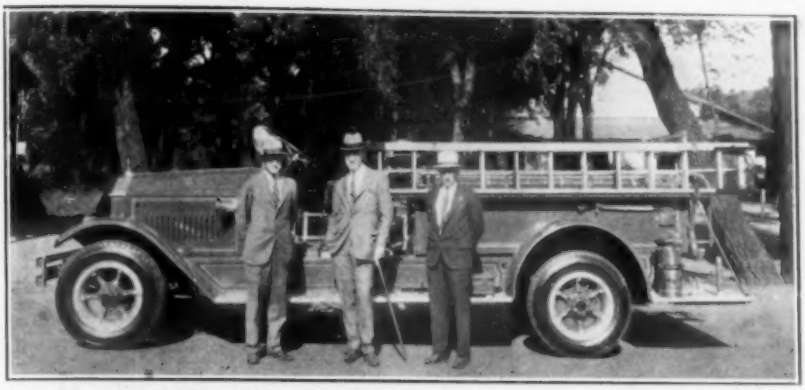
Even in wet weather concrete highways are *fast*. On their smooth but gritty surface tire-treads grip — and hold. Around curves and through road intersections, traffic moves freely on these *safe* highways.

This very freedom of movement makes driving most pleasurable. Smooth riding, too, adds greatly to comfort, prolongs tire life, and keeps fuel and upkeep costs at a minimum.

Nor are the savings confined to the car. Rigid, permanent, impervious to the beating sun, portland cement concrete highways serve indefinitely with but little maintenance.

PORTLAND CEMENT *Association*

Concrete for Permanence CHICAGO



SENOR ANTONIO ZUBIGARAY OF BILBAO, SPAIN (CENTER), WITH TWO AMERICAN-LA FRANCE OFFICIALS, AFTER INSPECTING THE NEW FIRE APPARATUS AT ELMIRA, N. Y., BEFORE IT WAS SHIPPED TO BARCELONA FOR EXHIBIT, PRIOR TO BEING PLACED IN SERVICE AT BILBAO

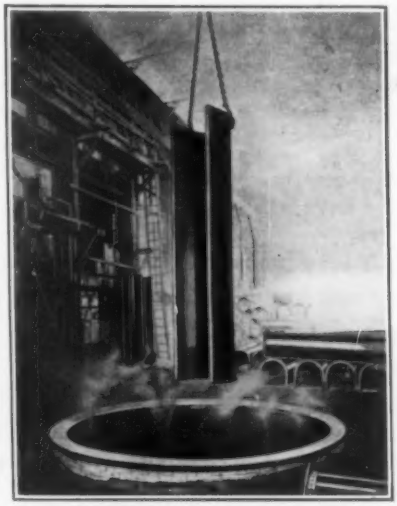
American Motor Fire Apparatus for Spanish Cities

Two pieces of American-built motor fire apparatus ordered for the city of Bilbao, Spain, have been shipped by the American-LaFrance & Foamite Corporation, Elmira, N. Y. This equipment has a rated pumping capacity of 500 gallons per minute and is equipped with the LaFrance rotary gear pump as well as Foamite extinguishers of the fire-department type, ladders and complete operating gear. The motors are rated at 79 horsepower and the hose part of the apparatus has a carrying capacity of 1,200 feet of 2½-inch hose.

Soon after their arrival in Spain, the two pumpers will be placed on exhibit at the International Exposition at Barcelona. This great exposition, which has been under way since early in May, is featuring all types of fire equipment during the entire month of October. During this period, the two American-LaFrance cars will be exhibited and viewed by royalty, government officials and the public. Not only will the pumpers be exhibited, but they will be demonstrated by the fire brigade of Bilbao in a variety of pumping and road tests. At the end of the exposition, the machines will be driven the four hundred-odd miles between Barcelona and Bilbao and there placed in regular service.

Applying the Protective Coating to Cast Iron Pipe

For many years manufacturers of cast iron pipe experienced difficulty in maintaining a uniform grade of coating material, as it was found that the asphalt pitch which was the basis of the coating material coked in the dipping tanks. Experimental work extending over a long period was conducted by the Ohio Varnish Co., Cleveland, Ohio, to determine the cause of this coking. It was finally located as a certain grade of asphalt pitch which was being supplied to the pipe manufacturers. By the elimination of this particular grade it was found that the batch could be kept at 400 degrees Fahrenheit for a long period without any signs of coking in the bottom of the tank. This led to the development of Ovarco pipe coating, which is shipped in the solid gum form in an open-head drum container. The metal container is cut free from the coating with an axe and the coating then cut into small pieces and placed in a preheating tank in which the temperature is maintained at 400 degrees. When the coating in the preheating tank becomes liquid, it is then ready to go into the dipping tank.



DIPPING TANK AND METHOD OF APPLYING OVARCO COATING

The cast iron pipe is heated in a preheating chamber and then dipped vertically in the tank containing the Ovarco pipe coating. The temperature of the dipping tank is maintained at 400 degrees Fahrenheit for the best results. In the event a heavier coating is desired than is secured by dipping in a one-coat operation, the pipe is permitted to cool for 15 minutes after the first dip and the dipping operation is repeated. This gives a heavier film than a one-coat dip operation.

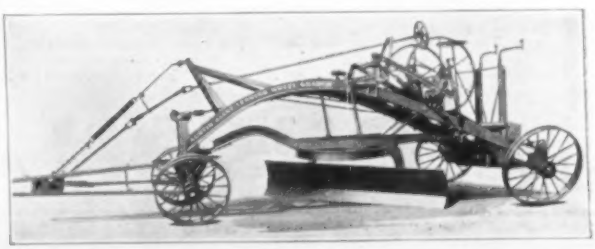
Field coating for painting joints and abrasions is supplied in liquid form and shipped in 55-gallon drums. The consistency of this material is affected by the temperature. When the temperature drops below 80 degrees Fahrenheit, a slight change in consistency is noted and as the temperature lowers, the field coating becomes of a heavier consistency. In the event that it becomes of too heavy consistency for proper working, it may be heated by placing a burner under the barrel, which will cause the coating to return to a proper brushing consistency. It is also permissible to reduce Ovarco field coating with naphtha when it has become too heavy for proper brushing, but the heat method is recommended where it is at all possible to make use of it.

An 8-Foot Grader with Telescopic Rear Axle

A new Giant 8-foot leaning-wheel grader with a two-piece telescopic rear axle has recently been developed by Austin-Western Road Machinery Co., 400 North Michigan Avenue, Chicago, Ill., to meet the needs of public officials and contractors. This latest model Giant grader is light enough to be handled by horses but is generally used behind a medium-sized tractor, and when so used is fitted with the improved offset engine hitch which operates under all conditions.

One of the features of this leaning-wheel grader is the telescopic rear axle, which makes it possible for the operator to set his blade where he wants it without the possibility of one of his rear wheels running in the loose dirt. It is also important on bank work, as it permits the operator to place the rear wheels where he wants them, out of the way of bushes, fence posts or telephone poles. Because of its telescopic axle and axle cage, the rear truck of the grader is so heavy that its weight alone helps to prevent a tendency to slide.

The improved steerable offset engine hitch is composed of a heavy 5-inch upper channel and 4-inch lower channel fastened together at the front by a sturdy connection, and at the rear by a strong strut. Steering is accomplished by a worm and gear carried in a bracket bolted to the pole near its middle, the bracket also acting as an additional strut between the upper and lower channels. A high-grade roller chain is used for steering, and adjustments are provided at both ends of the steering-chain rods for taking up wear. The pole is connected directly to the king pin, and revolves around it in steering, with the result that steering is not affected by the pull of the tractor transmitted through



THE NEW AUSTIN GIANT LEANING-WHEEL GRADER

TONCAN
IRON

TONCAN
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IRON

Has Revolutionized Culvert Performance

WHAT may have been good performance for culverts made of the best metal available years ago is not good enough for today. The development of the modern iron alloy has set a new standard of rust and corrosion resistance.

Toncan Iron—the scientific alloy of refined iron, copper and molybdenum has been proved by hundreds of tests and in hundreds of industrial applications as superior in rust and corrosion resistance to any culvert metal.

Here then is the metal from which your culverts should be made if you are to get the lowest cost per year in culvert service.

Specify Toncan Iron culverts and get maximum protection from rust and corrosion.

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The Berger Mfg. Co., of Mass.
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The Berger Manufacturing Co.
Philadelphia, Pa.
The Berger Manufacturing Co.
Roanoke, Virginia
The Berger Manufacturing Co.
Jacksonville, Florida
The Berger Manufacturing Co.
Dallas, Texas
The Berger Manufacturing Co.
Minneapolis, Minn.
The Berger Manufacturing Co.
(Export), Canton Ohio
Tri-State Culvert Mfg. Co.
Memphis, Tenn.
Tri-State Culvert Mfg. Co.
Atlanta, Ga.
The Firman L. Carwell Mfg. Co.
Kansas City, Kan.
Wheat Culvert Co., Inc.
Newport, Ky.
Beall Pipe & Tank Corp.
Portland, Ore.
Superior Culvert & Flume Mfg. Co.
Los Angeles, Calif.
Superior Culvert & Flume Mfg. Co.
Oakland, Calif.
The Thompson Mfg. Co.
Denver, Col.

The Pedlar People Limited, Oshawa, Ontario, Canada

TONCAN COPPER MO-LYB-DEN-UM IRON

the pole. The pole is connected to the front truck, rather than to the grader frame, to permit free vertical movement of the front end of the pole without interfering with or straining the frame. The main function of the lower channel is to pull the truck, the upper channel doing most of the heavy draft work.

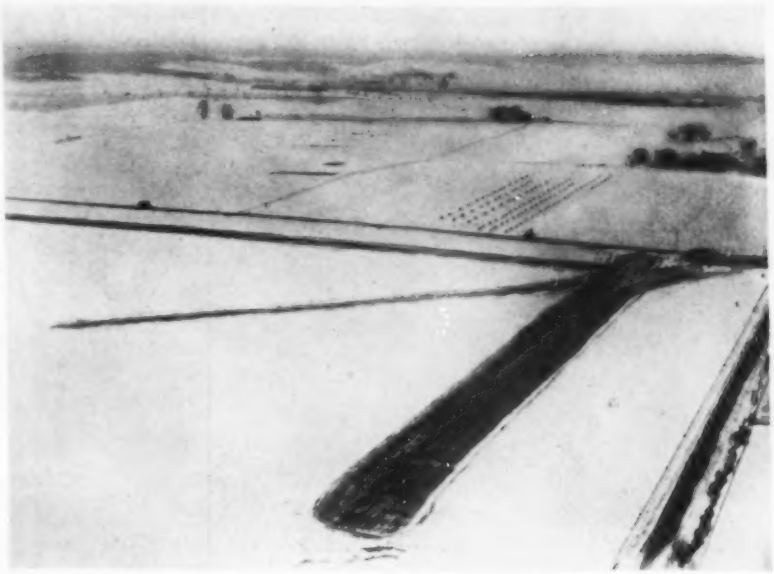
Another feature of the grader is that the front end of the arched frame is brought down close to the fifth wheel, while the power applied through the pole is transmitted in practically a direct line to the blade. The broad fifth wheel is of great assistance to the main frame in controlling frame twist, which is the tendency for one frame rail to be raised when the point of the blade is forced into a hard surface.

In the blade-lifting mechanism, the bell cranks are set closer to the frame than in former models, which makes possible an almost unbreakable construction. The bell crank shaft is made of high-carbon steel, 1¾ inches in diameter, hardened at both ends to support the bell cranks and held in place by heavy clamp bolts. The bell cranks are held in place by nuts which can be adjusted to take up wear. The blade-lifting arms connecting the circle and bell cranks are provided with machined sockets at each end, and shims between the caps and the main part of the sockets for taking up wear. The 2-inch balls that fit in these sockets are accurately machined and held in place by ¾-inch bolts driven into reamed holes. The cast steel sockets are threaded to the 1¼-inch high-carbon cold-rolled steel lifting arms, the threads on the arms permitting a certain amount of adjustment as regards length.

It may be provided with a scarifier attachment or a combination back sloper.

Snow Can Cripple Airports

The effect of snow on the operation of the newest means of transportation is wonderfully shown in the story of the Cedar Rapids, Iowa, airport which is on the main airway between Chicago and San Francisco. Traffic through the airport was completely paralyzed by a heavy snow during January, 1929. The snow varied from 10 inches to drifts several feet in depth. The port faced the prospect of several days of isolation, followed by dangerous landing conditions and finally a boggy field when the snow had melted.



AIR VIEW OF CEDAR RAPIDS AIRPORT, SHOWING CLEARED RUNWAYS

The County's Caterpillar Sixty tractor equipped with a LaPlant-Choate V-type hydraulic snow plow and wings happened to be clearing roads in the vicinity and had a reputation for good performance after three seasons bucking 800 miles of Iowa snow drifts. Within 4 hours and 20 minutes from the time the tractor reached the airport the machine with its crew of one man had opened the three runways, totaling 6,600 linear feet, with a clean floor 100 feet wide, and had cleverly bucked the snow out of the wide intersections leaving easy sloping snow banks along the sides of the runways. Traffic was restored, making Cedar Rapids the first airport between Omaha and Chicago to be opened and serviceable after the storm.

The old rough ice under the snow had been cleared to a floor level, the final smoothing touches having been given by a 12-foot road grader pulled by the tractor.

CATERPILLAR SIXTY WITH LA PLANT-CHOATE V-TYPE HYDRAULIC SNOW-PLOW AND WINGS USED TO CLEAR THE RUNWAYS

Page Moves Sales Department

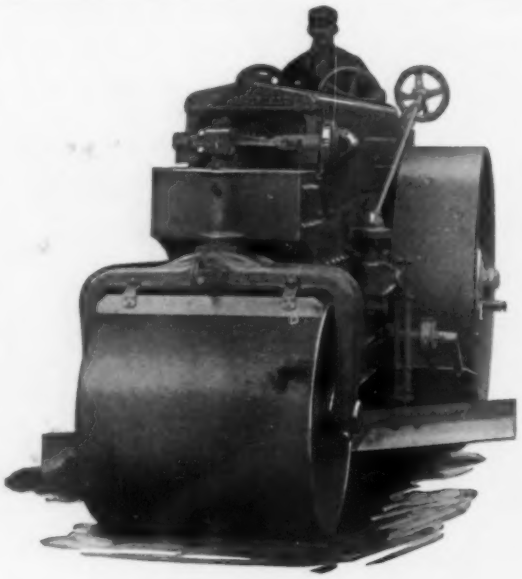
On August 5, the Sales Department of the Page Steel & Wire Co., manufacturers of Page fence, highway guard, welding wire and general wire products, was moved from Bridgeport, Conn., to the American Bank Building, Pittsburgh, Pa. Sales of Chain Link Fence will be handled by R. J. Teeple, field fence and general wire products sales will be handled by S. B. Cairns and welding wire and specialties will be handled by J. J. Flaherty.

W. T. Kyle, General Manager of Sales, is located in the General Sales Office in the New York Central Building, 230 Park Avenue, New York.

The Front Cover of This Issue

The Graf Zeppelin, moored during its recent around-the-world flight at the municipal airport, Los Angeles, is shown on the front cover of this issue of THE AMERICAN CITY. In the foreground is a McCormick-Deering industrial tractor which was used by the city at the municipal airport in preparing the grounds. A large truck was used behind the tractor in smoothing the surface. The tractor also assisted in building a circular track on which the two-wheeled carriage that supported the rear of the Zeppelin was operated.

This photograph was furnished THE AMERICAN CITY through the courtesy of B. Hayman Co., Inc., 118 N. Los Angeles St., Los Angeles, Calif., distributors for the industrial McCormick-Deering tractor and equipment.



Leadership

—And All the Term Implies

Ability to lead means having those qualities that men recognize as superior. *Nothing else* makes leadership.

From coast to coast, wherever new roads are being made or present ones repaired, Buffalo-Springfield Road Rollers are the choice of the men on the job. Advanced design and superior performance make these rollers widely accepted as leaders worthy of the name.

Various steam and motor driven designs in all practical sizes. Attachments when desired. Interesting booklet on request.

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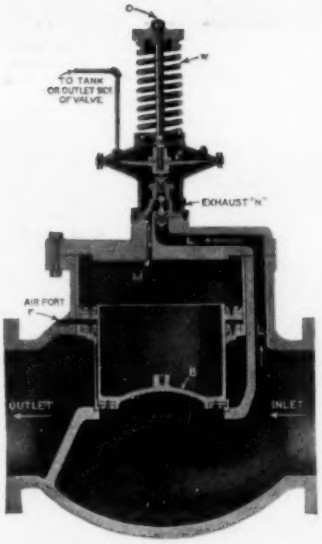


SECTIONAL VIEW OF GOLDEN-ANDERSON AUTOMATIC CUSHIONED CONTROLLING ALTITUDE VALVE

The Control of Water Levels in Standpipes and Elevated Tanks

The standpipe, and the elevated tank in particular, have become important parts of many water-works systems in maintaining a uniform pressure over an extended distance. In cases where several tanks are used, it is necessary to maintain specific levels in each tank in order to preserve the pressure in the system. For this purpose altitude valves are used. The Golden-Anderson patent automatic cushioned controlling altitude valves, made by the Golden-Anderson Valve Specialty Co., 1329 Fulton Bldg., Pittsburgh, Pa., is designed to eliminate all floats and complicated fixtures.

The valve is conveniently installed in the supply line near the tank or reservoir where it is always accessible and is housed from inclement weather and frost, thus giving uninterrupted service and a positive water supply during all seasons. The altitude valve is built with a heavy or extra heavy iron body and is fitted with bronze down to and forming the seat. The main valve or sliding piston is solid bronze fitted with renewable cups and seat rings to take all the wear and to prevent a metal to metal seat, which make the valve long-lived.

The sectional view of the altitude valve in the accompanying illustration shows the valve in closed position due to pressure above the diaphragm, R, having overcome the adjustment of the spring, W. Whenever pressure above the diaphragm, R, decreases due to the water pressure lowering in the tank or main, the large coil spring, W, contracts, removing the pressure above the exhaust valve, I, and permitting the high-pressure valve, H, to close, thus shutting off the high-pressure port, L, so that the water above the piston, B, may escape through the port, M, pilot valve and port, N, as the intial pressure underneath the piston, B, opens the valve.

Whenever the pressure in the tank or outlet side of the valve reaches the predetermined point, it acts above diaphragm, R, overcoming the adjustment of the spring, W, causes the pilot exhaust valve, I, to seat and the high-pressure valve, H, to open, so that the high- or initial-pressure through port, L, the pilot valve and port, M, above piston, B, closes the valve due to the greater area above piston, B, than underneath it.

The valve in opening is cushioned by compression of water above piston, B, through port, M, and pilot valve and, as the piston moves upward, it sucks air into the air chamber of the valve through the air port, F, in the side of the valve body. As the valve closes the air in the air chamber of the valve is compressed and forced out through the air port, F. Thus the valve is always cushioned in closing and opening.

The altitude valve is easily adjusted for any desired water level or pressure on the delivery side of the valve. By simply screwing down on the adjusting nut, O, a greater water elevation or pressure is obtained or, by screwing up on the adjusting nut, O, a less water elevation or pressure is obtained. Once the valve is properly adjusted for the requirements, it works continuously without further attention.

The valves may be equipped with variation control to permit the valve to close at the predetermined water level and to remain closed until the water level lowers to a predetermined point, when the valve will again automatically open to permit flow through the valve.

The Value of Snow-Fence in Keeping Highways Open

The drifting of snow onto the public highways creates a serious obstacle to traffic. As public officials are rapidly coming to a realization of this fact, the use of snow-fence is becoming more nearly universal throughout the snow-belt for keeping roads open to traffic throughout the winter.

In erecting snow-fence, there are a number of things to be taken into consideration. First, there must be enough of it to take care of the entire road. It must be erected at the proper places and at the proper distance from the road, which depends upon local conditions. In some places it will be necessary to erect the fence only along one side of the road, while at other places, because of cross-winds, it will be necessary to protect both sides of the road.

Not only the main highways must be protected, but also the county and secondary roads, if this method of combating the snow evil is to be a success. In this day of universal travel, people will not be satisfied to discard their cars for three or four months of the year because of blockaded roads, and the best way to assure that the highways will be open is to prevent the snow from drifting onto the road-bed. If the snow is once allowed to reach and blockade the road, with the subsequent packing by horse-drawn traffic, nothing will open the road to motor traffic except the use of large tractor and truck snow-plows.

Although snow-fence is primarily used on highways, a large amount is used by railroads and by cities in protecting their outlying streets. Now, with the rapid development of aviation, with airports throughout the country, snow-fence is coming into use as a measure to keep runways open and clear of snow.

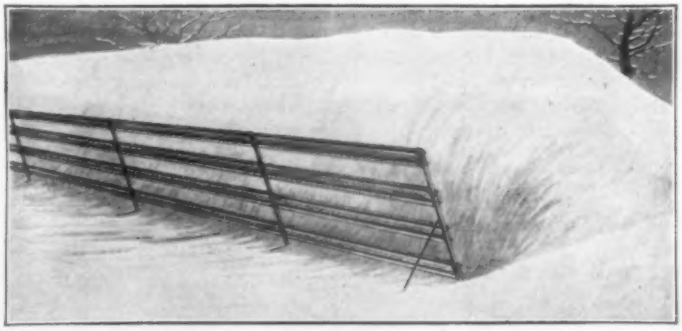
Northfield Blizzard Buster snow-fence, manufactured by the Northfield Iron Co., 496 Nico Street, Northfield, Minn., is made up of horizontal pressed steel boards on strong posts which can be easily driven into frozen ground without damage. Being demountable and portable, it can be easily erected, and taken down, stacked and moved from place to place. It is fireproof and rot-proof and is also recommended for stopping the drifting of sand.

Westinghouse Awarded Substation for Springfield

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., was recently awarded an order by the city of Springfield, Ill., for a complete automatic reclosing substation. All of the switchboard equipment will be mounted on modern stretcher level steel panels which will be mounted near the wall of the station. The switching equipment will control two transformer panels and four automatic reclosing feeder equipments with Type GR reclosing relays.

Repair Parts

Municipal departments using products formerly manufactured by the Flower Stephens Manufacturing Co., Flower Valve Manufacturing Co., Galvin Brass & Iron Works, Michigan Brass & Iron Works, and Roe Stephens Manufacturing Co., will be pleased to know that repair parts can be supplied by the Michigan Valve & Foundry Co., Detroit, Mich.



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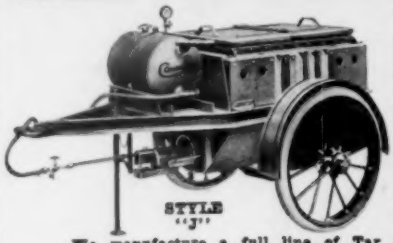

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We manufacture a full line of Tar and Asphalt Kettles, Oil Burning Kettles, Oil Burners, Torches, Pouring Pots, Hand Spraying Attachments, etc. Send for "Blue Book" describing our equipment.

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ALL STYLES
Portable and Stationary
25 to 200 gallons

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THE JOS. HONHORST CO.
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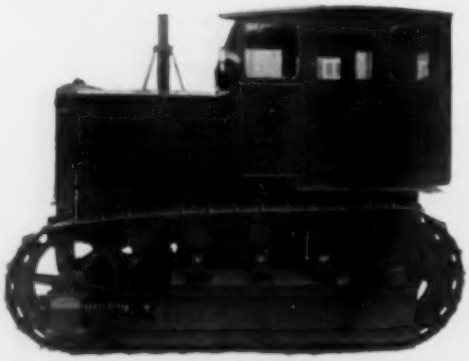
THE BATES SNOW SPECIAL



Complete protection is provided by an enclosed cab with glass windshield and windows. Equipment consisting of electric starter, electric generator and lights, oil gauge, comfortable seat and controls makes maximum efficiency for every snow and winter operation.

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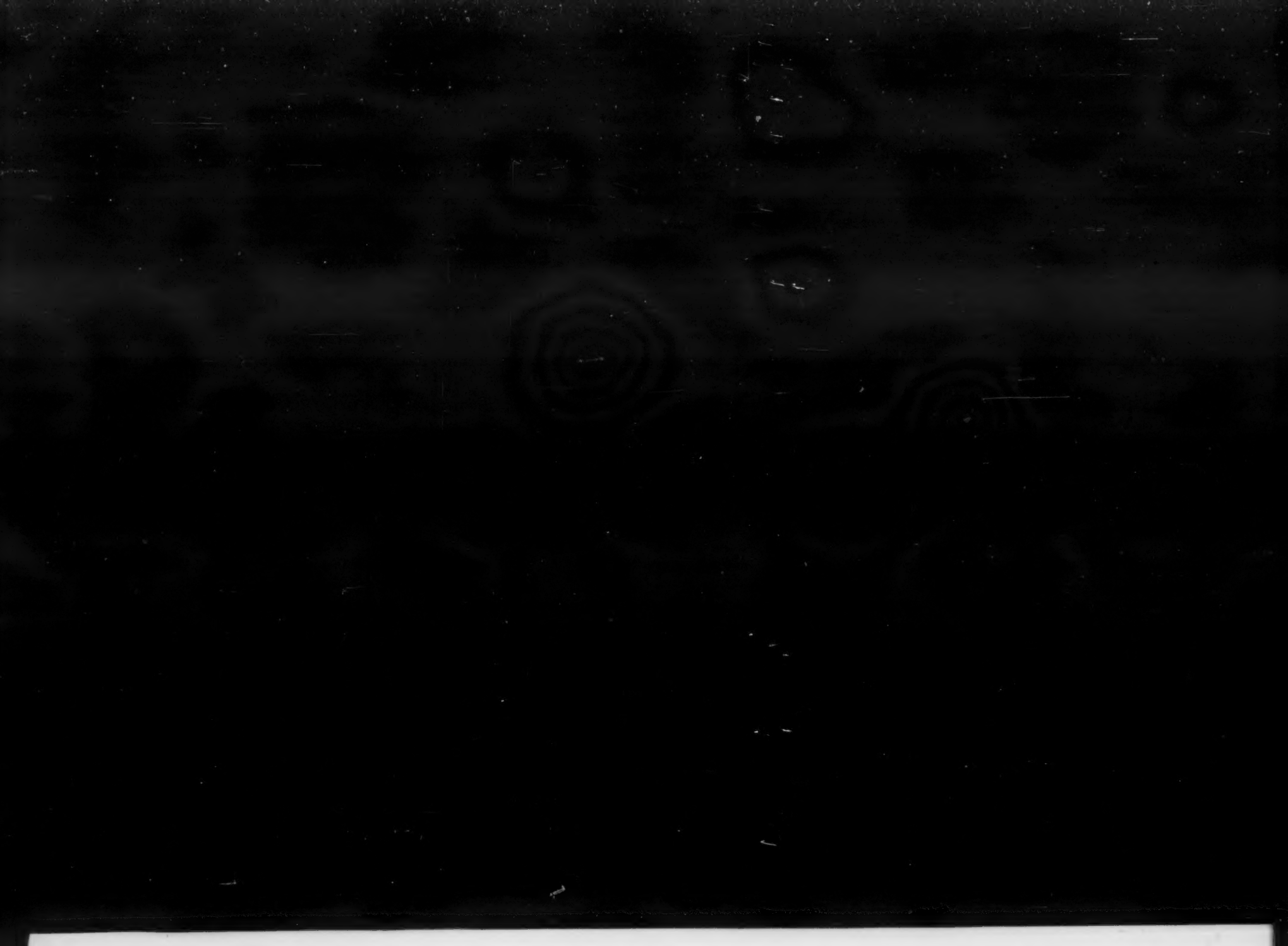
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